Page 6 Publishing's **NEW**

ATARI USER

The Resource for the ATARI CLASSIC and the ATARI ST

Issue 83 - March/April 1998 £2.50

FOR THE ATARI CLASSIC



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This issue's ....

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their contributions this issue

Joel Goodwin	**Chris Richardson**
Jason Kendall	**Simon Atterbury**
David Sargeant	**Kevin Cooke**
James Mathrick	**Dennis Hedges**
Ann O'Driscoll	**Terry Chamberlain**
Austin Hillman	**Charlie Ayres**
Richard Gore	**Dave Bennett**
John S Davison	**Paul Lay**

APOLOGIES

I am still extremely poor in acknowledging contributions so I apologise to everyone who has sent in stuff and thought it has gone through the wormhole. The intention to reply to everyone is there but the time seems to drift by. If you have not heard, thank you and keep watching the mag, you might be surprised.

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, a HP Laserjet III, Citizen 124D printer, Philips CM8833 monitor, 130XE, a couple of 1050 disk drives, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles submitted on XL/XE disks are transferred across to the ST via TARITALK. Programs are coded on the XE and printed out directly for pasting in after the typesetting is completed. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. Each page is output directly from Fleet Street to a HP Laserjet III which produces finished pages exactly as you see them. All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

Inspiration

I decided to revive my library ticket this time and borrow a few CDs from the library. I don't know why I didn't think of it before. A major new discovery is Kate Campbell who has two excellent CDs. She is one of those artists classified as 'New Country' but is much more towards contemporary folk and a cracking songwriter with superbly observed insights into ordinary life. I also had Nanci Griffith's Blue Roses From The Moons which is a little different from earlier stuff but still good after a few plays. Also from the library came Joan Baez and Joni Mitchell. But a few days before I came to write this I discovered that Robbie Robertson had a new CD entitled Contact from the Underworld of Red Boy, another Native American inspired collection and I had to get it. Not as good as his last but still superb for my tastes and interests with a song that ties in neatly with the book I have just read. Excellent, it's on the headphones now.

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subscription. Single price £2.95 per disk, a disk subscription saves you almost £8 a year. Subscription rates (6 issues)

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Editorial

Well, here we are bang on schedule and all going as planned. You have all given great support and understanding following my explanation for delays last time and it is great to be able to get back on schedule. With your continuing support (and contributions) it looks like this year will see us back on the straight and narrow. If you have a few sceptic friends, let them know and get them to renew their subscriptions.

INTERNET

A couple of issues ago I said that I would talk about my Internet experiences following a visit to a Cyber Cafe in Glastonbury. Since then I have been to Glastonbury again and yesterday visited a local shop that offers Internet access. I have to say that the Internet is totally brilliant yet unbelievably frustrating.

When I first logged on I used the search facilities looking for favourite subjects. I tried the sci-fi author Arthur C. Clarke and it came up with something like 1,400 entries! All I managed to do was skim through a few likely looking entries on the first few pages and most of it was pure dross such as an entry on somebody's list of their 100 favourite authors! If you want something popular like Star Trek it is even worse. My son tried this and there are tens of thousands of sites, totally impossible to wade through. Interesting yet frustrating.

This latest time I had a few addresses to go directly to but I also wanted to search for something. Bearing in mind that it costs £5 an hour I couldn't afford to spend all day on-line so I booked an hour. what I really wanted to find was some reference to someone called Leonard Peltier. Leonard Peltier is a Native American who has been in prison since 1976 after being convicted for a crime he did not commit. I had just read a book about his trial and, as the book was published in 1991, I wanted to know his current situation. This is where the Internet really comes into its own for without it there is no possible way I could find such information within a short time, it would take months of research in libraries and in correspondence. Since I had no idea where to start looking I entered his name into a search on Yahoo (see John Davison's recent articles) and it came up with just 4 entries. These turned out to be references within the reports of proceedings in the Canadian Parliament and two of the entries were in French! Severely disappointed I turned to the other sites that I had addresses for. One of these was for Robbie Robertson and I found out some useful facts that I didn't know. I also discovered what TV appearances he was due to do in the USA in the coming months, not directly useful but where else could you find such information?

I next connected to Greenwich Workshop who publish fine art prints since I was interested in work by Howard Terpning. This was a superb site with the last dozen or so of the company's catalogues on line to browse through. Trouble is each page was illustrated in full colour and whilst the quality was superb it took ages and ages to download. Each time I went to a new page there was a minute or more wait while the picture gradually appeared. Talk about frustrating. Can you imagine checking out a painting in a gallery where the curator only uncovered a little bit of the painting at a time? I checked the index available and looked up Howard Terpning and found about twenty entries. I began checking them out but realised that I was running out of time so abandoned this to check another site.

continued on page 35

GOOD NEWS

SOFTWARE GALORE!

You may have thought that software for the Atari Classic had all but disappeared but there are still several companies in the USA actively trading in the stuff and even producing new ROM cartridges!

One such is VIDEO 61 who have just sent us their latest price list. They sell new and used software for the Atari 2600, 7800 and 5200 game systems along with brand new cartridges and disks for the Atari 8-bit. Among the 100 plus cartridges listed are games such as Alpha Shield, Claim Jumper, Congo Bongo, Chicken, Dark Chambers, Journey Into Space, Kickback, Mr. Cool, Space Journey, Springer and Topper. How many of those have you heard of? Not only that but VIDEO 61 produce their own ROM cartridges which include MYDOS and the following NEW games - Rocks, Amazemaze, Hearts, Montana Solitaire, Checkers, Jailbreak, Ricochet, Sharp Shooter, My Jong and Paddle Wars.

If you prefer disks there are 136 disks listed including such long gone gems as FLIGHT SIMULATOR II and Elektraglide. Among the more unusual titles you will find Aquatron, Bismark, Classy Chassis, Divex, Guderian, Knickerbockers, Maxwell Manor, Pensate, Paris in Danger, Space Cowboy, Spite & Malice, Title Bout Boxing and loads more. There has to be something in that list that you don't have in your collection!

The prices are reasonably high compared to many of the 'clear-out' bargains that have been had over recent years, but then many of these are scarce titles and some have not been seen in the UK before. ROM cartridges are $19.95 each and disks are priced between $9.95 and $14.95 each. Shipping costs overseas are not mentioned so it would be best to enquire first. The good news is that the company accept Visa, Masterclass and American Express so the usual hassles of paying can be avoided.

Your best bet is to send a couple of International Reply Coupons with a request for the listing and costs of overseas shipping or phone for more details. Send to Video 61, 22735 Congo St. N.E., Stacy, MN 55079, USA. The phone number from the UK is 001 612 462 2500 and Minneapolis is 6 hours behind UK time so take that into account.

If you do get some of this obscure software please consider writing a review for a future issue of New Atari User or, at the very least, drop us a line to let us know how you got on with ordering and delivery. We need to share as much information as we can these days to keep Atari interest alive.

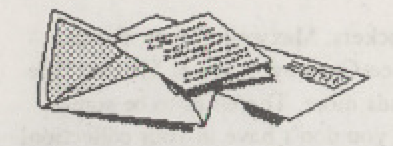
YOU ARE NOT ALONE!

If you are an Atari gaming fanatic, whether with an Atari computer, a VCS, 2600 or 7800 games system, you may be delighted to know that you are not alone.

Over in Albuquerque, New Mexico a couple of diehard fanatics publish a regular newsletter for the likes of you entitled ORPHANED COMPUTERS & GAME SYSTEMS. The newsletter covers all those systems that have been abandoned by their makers and now survive only in the hands of foster parents like yourself. Although not exclusively Atari there are many Atari games reviewed each issue with perhaps a bias towards Atari systems (stands to reason!). The December 1997 issue included reviews or comments on several Atari games and an article about the 8-bit. Not necessarily in depth coverage and only 10 pages in all, but an interesting read nevertheless. One of the best things is the author's sense of humour evidenced in 'Letters' page in which the 'full mailbag' is presented. You have everything here from circulars for beef patties to the electricity bill! Some mornings I know how he feels!

ORPHANED COMPUTERS & GAME SYSTEMS will cost you virtually nothing. All the authors ask is that you send $1 for the next issue. This, of course is for the USA so I would suggest that you send a couple of dollars at least to cover the postage. Pop down to the bank or local travel agent and get yourself a handful of dollar bills and send a couple to Orphaned Computers & Game Systems, 4321 Montgomery NE, #339 Albuquerque, NM 87109, USA.

Mailbag





This issue's Mailbag conducted by Les Ellingham

Some cracking letters this time for Mailbag so, without further ado, let's get going.

FOLLOWING UP

Long-time Atari supporter Richard Gore has a number of interesting follow-ups from last issue's Mailbag so let's hear from him:

" Firstly let me say how pleased I was to receive the latest issue of NAU, Issuer 82, after such a long wait from Issue 81. I must admit I was fearing the worst, as I believe many other subscribers were, but now hopefully we can continue on.

I would like to address several issues made in the Issue 82 Mailbag starting with Mice. Several programs have been written to take advantage of this very useful input device. As Paul Bramley stated The Brundles is one, but there are more. The Brundles level editor is another, Mine Sweeper from PPP offers a mouse option as does Shanghai, a version of Mah-Jong from Activision. For those of you interested in programming the Quick programming language from PPP (Dean Garaghty in the UK) offers built-in support for the use of a mouse in programming, indeed the Quick Ed character set designer from PPP uses it to great effect. Paul also mentioned a bonus program in Issue 79, Guntris. Well, I am possibly the most qualified person to answer questions about that program as I wrote it, and yes it does support mouse input (and light gun and joystick inputs as well). It was written in Quick and uses the mouse input commands of that language. I'm sure there are others out there as well.

Now on to the issue of the mouse itself. Several years ago you used to be able to go into any computer shop and buy a switchable ST/Amiga mouse, you set this to ST mode by flicking a switch usually on the bottom of the mouse, plug it into port 2 of your Atari and you were away, however they are not that easy to find any more! Mice that PC's use these days are, to the best of my knowledge, not easily convertible for use on an Atari 8-bit or ST or Amiga for that matter. The connectors are different for a start and the PC has two formats of mice (ps/2 and serial I think) which require software drivers to be installed (mind you which PC peripheral doesn't?). It might be possible to use a PC mouse with a bit of work (but then again it might not) but by far the easiest way is to use a mouse from an Atari ST, even though you can only use the left mouse button and not the right one. Has anybody figured that out yet and come up with a software method of reading the right button?

Now on to PCs. Well you either love or hate them. Some would say they're progress, others would argue against them. I do have a PC. I mainly use it for Internet connection and DTP work. I have a few games but I still regularly go back to my 8-bit and play games on that. PC games can have CD quality sound, realistic video playback and graphics that would blow your mind, but they often come with inch thick manuals and require you to learn eighty-six key presses just to launch your ship. Most PC games in my opinion are overpriced and over complex, sure sometimes it is great to sit down for hours on end and play a game and be able to return to it time and time again and still only be scratching its surface, but there are times when you want a quick half an hour of game playing action just to see if you can beat your best score. Some of the most popular games have the simplest ideas, just look at Bomberman - simple idea, simple graphics, hugely addictive and eminently programmable on a 8-bit machine, but there aren't many games like that about.

A lot of people now use PCs at work, but few actually understand how they work, how they've developed or even how to use them properly or efficiently. Sure they make work easier in some cases but some people are 'frightened' of them and we now have a whole range of industrial diseases caused by people using them all day and we call that progress? You may have guessed I have mixed emotions, I grew up with the computer revolution, I love using them, I understand something about them and their history. I'm no expert but I'm very cynical about people's dependency and misconceptions.

There are several Atari 8-bit emulators available for PC users like XLit! and PC Xformer. To my mind XLit! is the better of the two but PC Xformer was the first and is still highly commendable. Only you can decide whether or not you are interested in them. There are several interfaces that allow you to connect up your PC and 8-bit computers and transfer data between the two. You can even set your PC to act as a disk drive slaved to your 8-bit Atari. Various people (including myself) can supply the emulators and software to run on them, but why would you want to run 8-bit software on your PC when you have your Atari sat there right next to your PC? God question! There are several answers. There are people out there who have got rid of their 8-bit equipment and would love to fire up an emulator and relive a little bit of what they grew up with. Other people's machines might have died and they can't get replacements and so move on to another platform - lo and behold they can use 'their Atari' again. Other people just want to have both, the best of both worlds. Whatever your reasons, there are many people interested and probably just as many not interested. However what remains is that it is now possible to emulate earlier computers on today's PCs and the software will probably work (even faster) on tomorrow's PCs and next year's PCs and the next millennium's PCs thus ensuring longevity of the machine and heritage even though the founding company has long since disappeared. Who knows Windows 2095 might even have emulators built in?

Several months ago, people on the Atari newsgroups on the Internet were talking about replacing the CPUs of the 8-bits with faster ones in attempt to make the computers run faster. Many thought that although it might be possible to replace the CPUs (indeed that is possible and has been done) trying to get any worthwhile increase in speed would probably not work due to the architecture of the motherboard and the other microchips. So how about this idea? XLit! and PC Xformer can and do run faster than the original machines on recent specification PCs, P150 Pentiums and equivalents and above, so without any hardware modifications you can have an Atari 8-bit computer (albeit emulated on another computer) running faster than the original machines. How far can we push this increase in speed? Can we really take advantage of such things? I don't know but it would be great if we could find out.



I hope that I've provided some food for thought without boring you. By the way if anybody wants to contact me by e-mail, please feel free to do so at Rgorexxx@aol.com"

XF551 INFO

Chris Richardson over in Germany has some information for us following Alan Milne's letter last issue:

"The XF-551 is capable of writing in four different densities as follows -

- Single density (one sided) 720 sectors/128 bytes = 90 KB
- Medium density (one sided) 1040 sectors/128 bytes = 130 KB
- Double density (one sided) 720 sectors/256 bytes = 180 KB
- Quad density (two sided) 1440 sectors/256 bytes = 360 KB

The XF-551 is capable of writing on both sides of the disk. In Quad density the drive writes sectors 1 - 720 on side 1 and sectors 721 - 1440 on side 2, the switch from one side to the other isn't noticed by the user. One of the biggest problems of the XF-551 is its inability to recognise the density on a disk (the 1050 does this automatically) which means that the software must do this. DOS 2.5 (which was supplied with the XF-551) cannot do this but other DOS's like BIBO-DOS for example are perfectly capable of quad format with the XF-551. It is not possible to just turn the disk over as with the 1050 drive as the drive does use the timing hole which would then be on the wrong side. Years ago it was possible to get disks with two timing holes but I don't know where you could still get them.

I have two 1050 drives and have never owned a XF-551 so I hope all this information is correct. I would encourage anyone using a XF-551 to buy a copy of BIBO-DOS from Klaus Peters Elektronic, Compy Shop, Gneisenau Strasse 29, 4330 Mullheim, Germany."

PC TRANSFER PROBLEMS

Philip Brown from Ipswich is one user who would like to use a PC alongside his 8-bit but is having problems:

"I wonder if any of your readers have come across the following problem. If so I would be grateful for any advice you have to offer.

Some years ago I bought a second-hand Atari 800XL, 1050 disk drive and 1029 printer to use as a word processor. Over the years I wrote many short stories and poems which, of course, I stored on floppy disks. Eventually I purchased another second-hand computer, a Tandon 286. Wishing to transfer all my files to the PC, I also purchased a GM Transfer cable and software from Derek Fern. Unfortunately I have had no success whatever in using the transfer cable. There are several possibilities for this:

- The 286 PC may not be suitable, maybe I need a 386 or higher.
- From time to time the 286 crashes, leaving me with a blank screen and the message Parity Check in the top left hand corner. I have, after extensive enquiries, found that Parity Error would indicate a faulty RAM chip but have, hopefully, eliminated this problem with the help of a diagnostic program.
- During my enquiries I discovered that some early Windows programs, I have Windows 3.1, contained a fault that could cause the problem.
- The most likely cause I believe is the fact that my Atari 1050 drive was modified by having an Innovated Software Plate fitted. There is an electronic toggle device to change from normal to the IS mode, but I often have trouble loading programs, especially in the IS mode. For instance Mini Office would load with very few problems but Atari Writer Plus would not load in either mode.
- The fifth reason could be Operator Ignorance. I find that the operating instructions are not completely idiot proof. A very simple step by step set of instructions might be helpful.

I can load the SIO2PC version 2 program on my PC, either from the floppy disk or the hard drive, through Windows but there is no sign of interaction between the PC and the Atari XL.

Here's hoping that one of your readers may be able to throw some light on the problem."

PC CONNECTIONS

Here are some suggestions and observations from Simon Atterbury on making it easier to use emulators on the PC.

"I have been reading with great interest in the last few issues of NAU about emulation of the Atari Classic on the PC. Reading the letters pages it seems as though a lot of the readership own PC's. In that case why don't you offer Freeware/ Shareware etc. emulation software in the Page 6 Library for PC's and Mac's. If you get a reasonable user base you may want to offer the PD software you hold in the library on 3.5 inch PC format disk for all emulation users.

As there seems to be several emulators out there you may want to recommend one as the standard emulator for NAU readers and ensure that any files you hold in the library are compatible with that emulator.

As an owner of an Atari 800 (starting to fall apart), two 800XL's (one with dodgy keyboard and the other with lousy video output) and a 1050 disk drive (only works during the full moon), I am already running 8-bit programs on my PC. Therefore I would certainly be interested in the above service.

Obviously the emulators and a lot of the software are available on the WWW for downloading but the convenience of sending off an order to you, getting the software (that actually works) on a disk and having proper documentation would be of great benefit.

What do you think?"

❢ *Interesting ideas there, Simon but one or two problems. One of the reasons that the Page 6 Library was so successful in the early days when there were many PD libraries about was that I took PD programs from many sources, checked them all out to make sure they worked (and more importantly made sure that it was fairly easy to understand how to use them), and put them on a disk in such a way that anyone could use them. You didn't have to understand programming or work out what to do to get a program to run. Provided you understood the basics of using the Atari, you simply needed to boot up the disk and input your choice of program from a menu. Now I am sure that this sort of idea would work equally as well for PC users in the way you suggest. Rather than have to trawl the Web looking for programs that might or might not work, wouldn't it be easier to buy ready made disks that someone else had already tested. I am sure it would be popular.*

The problem is that I don't have a PC and without one there is no way that I can test programs or put together disks. The even worse news is that it is unlikely that I would be able to afford to buy a PC until the 21st century, and even then not for a good while, so it looks as if a good idea will have to be consigned



to the 'good ideas that never were' basket. Sorry!

HERE BE MICE!

In the last issue Paul Bramley asked whether anyone knew of programs for the 8-bit that used a mouse. Kevin Cooke has been doing some research and has come up with the following:

"As far as I know the full list of software that can use a mouse on the 8-bit is as follows: Brundles, Brundles Editor, Printworks, Operation Blood II, Quick Ed (character set editor), S.A.M., SAM Budget, SAM Designer, SAM Utility Extensions 1, Card Stax (on Futura Issue 14), Multi Mouse (Page 6 Issue 42) and a game written by myself called 'Noughts and Crosses' on a past issue of Futura.

Multi Mouse is great and was used to write my own Noughts and Crosses game. If you want to use it in Turbo Basic however, you'll need a modified version available from several PD libraries. I also wrote a column called 'Adding A Mouse' in several issues of the Futura diskmag, reviewing much of this software. Check it out for a more in-depth examination of using a mouse on the Classic. I hope this helps Paul out or perhaps gives him a lead to other software.

While I think of it, in a long gone issue of Page 6 (or it may have been Atari User) one company was advertising mice for sale on the Classic and some software including a patch that would allow Atari Artist to recognise a mouse. Does anyone know if it really existed or was it vapourware?"

DRIVE PROBLEMS

Dennis Hedges from Southampton needs some help in fixing his 1050 disk drive and no doubt someone will have the answer.

"Can anyone help? I seem to be in trouble with my 1050 drive again. I am unable to write to it unless I take the cover off. I know what the problem is but I have been unable to find the correct parts to fix it. The sensor on the write protect is not working, it appears to be the top one as looking at it the little bulb is black. I cannot see any manufacture's markings on it if there ever were any. Is this an Atari only product or something one can get from Maplin?

I should like to take this opportunity to thank Les and Sandy for all the good work in keeping the magazine going. I may not understand it all but it is nice to know that someone is around to help. A thank you to Derek Fern from Micro Discount in February for giving his assistance in going through a SIO2PC problem I had.

Also are there any Atari users here in the south of Hampshire. I know a while back there were some in the Portsmouth area. If you are still there I would like to make some contact."

❢ *Thanks, Dennis. It looks like you might be able to help Philip Brown (see his letter this issue) with SIO2PC problems and I am sure someone will come up with an answer to your 1050 problem. If anyone local to Dennis wants to get in touch, give him a ring on 01489 601771.*

TRAIN TIME!

Terry Chamberlain has spent a good couple of years on a special project but here finds time to help out with answers to several of the questions posed in last issue's Mailbag.

"I was very happy to receive the latest issue (82) of New Atari User and see in your editorial that you intend to carry on for yet another year - but I was also sorry to hear about the effort that it is costing you to keep going. Please believe that your hard work is very much appreciated. I hope that the small contribution enclosed for the latest PD disks is of some help.

You may recall about a year ago I wrote telling you of the current Atari project that is occupying all of my spare time. This is the hardware and software to implement an interface from the Atari Classic to control model railways using the Digital Command Control system - as requested by Decker McAllister and his colleagues in California and Arizona.

After nearly two years of work (and considerably beyond my initial estimates) it looks as though completion is in sight. The first demonstration version of the software, which now stretches to over 15,000 lines of Assembler source code was released just before Christmas for evaluation. Much to my relief it appears to run perfectly on the NTSC (USA) versions of the Atari Classic - since it involves a lot of critical timing routines I was a little worried that changing to 60Hz screen frame rate from the normal PAL 50Hz rate would disrupt operations - but all seems well.

I am now back working on the design of the interface electronics, to bring them into line with the needs of the software, and it looks as though I might manage to get a real working system before summer. I won't manage to write it up as an article before your next deadline of 2nd March, but I will make every effort to produce some text for you for the issue after that.

Meanwhile, I can, perhaps, add a few comments to some of the topics brought up in the most recent 'Mailbag'. Firstly, I can claim to be one of the people who have retained their Atari Classic system after acquiring a PC. In fact, production of the software for the model railway DCC project mentioned above would have been almost impossible without the use of both types of machine. I use the excellent SIO2PC shareware software produced by Nick Kennedy to connect my 800XL to the PC. The actual connection is made by a small piece of hardware very similar to the RS232 interface described in Issue 81. This is relatively easy to construct following the documentation provided by Nick Kennedy (and perhaps taking into account the comments made by John Foskett in Issue 82) and connects the Atari SIO port to any RS232 serial port on the PC.

Once connected, the SIO2PC software running on the PC turns the PC into a set of 'super' Atari disk drives which can be handled under any Atari DOS system without any modifications to the Atari hardware, and without any additional software running on the Atari machine. Atari files can be stored on the PC hard drive or transferred to PC floppy disks, so you can have your complete Atari library almost instantly to hand.

Using SpartaDOS (or, I believe, MyDOS) it is possible to set up these 'super' disks on the PC with a capacity of 1MB - which was essential for the model railway project where the source files amount to around 500KB and the Assembler list file alone occupies in excess of 650KB. I have to admit that files of this size are totally beyond the capabilities of any of the Atari text editors, so I actually use the PC to generate and edit all of the Assembler source code. This is then transferred to the Atari 800XL via an RS232 comms link, using a P:R: Connection and BobTerm at the Atari end to handle the communications. BobTerm is by far the best comms program for the Atari Classic



machines and translates the PC's CR/LF ASCII characters to Atari 'End-of-Line' characters 'on the fly'. After a little more manipulation on the 800XL the translated source file (held on an SIO2PC 'super' disk in the PC) can then be accessed by the Assembler/Editor cartridge and assembled to produce the required machine-code object program and the output list file. These are output directly to another SIO2PC 'super' disk file on the PC since there is no way the very large files involved could be held within the 800XL memory or on a real Atari disk drive.

Although it all sounds very complex, it is relatively easy to use in practice - and very satisfying to utilise the PC as an Atari peripheral!

With regard to the use of a mouse on the Atari Classic, this is certainly possible although I am not aware of any commercial or PD programs which currently provide employment for the little rodent. Mice intended for either the Atari ST or the Commodore Amiga can be connected to a joystick port, although it is not possible to connect up a Serial or PS/2 mouse intended for PC use. To follow fast mouse movements it is necessary to sample the mouse signals at around 1000 times a second - perfectly feasible at Assembler level but beyond the capability of any routine written in Basic. Mouse usage is fully supported in my own model railway control software which incorporates the necessary machine-code routines. Less than 250 lines of Assembler are required to implement a general-purpose mouse handler which can be incorporated in the standard Atari CIO system and, hence, made accessible to any application program written in Basic or machine code. A few years ago I successfully modified the code of the game 'Taipei' (a version of Shanghai or Mah Jong solitaire, available at one time from Page 6) to accept mouse rather than joystick input. This was written up for an article which appeared in the now-deceased '8:16' magazine. If there is any interest among your readers, I might resurrect some of that article for a future issue of NAU.

Finally, in reply to the query from Alan Milne on how to escape from a machine-code subroutine back to Basic, all that is required is to execute an RTS instruction in the subroutine - provided that the machine-code subroutine has previously taken all of its parameters, which may have been passed to it from Basic, off the computer's stack. Full details of the process are described in Chapters 4 and 11 of "Your Atari Computer" by Poole, McNiff, & Cook. Briefly, when you call a machine code subroutine from Basic with an instruction of the form -

A = USR(ADDR,P1,P2)

- the address of the next Basic instruction is first pushed to the computer's stack (a reserved area of memory) as two bytes. The values of the optional parameters - here P1 and P2 - are pushed to the stack as two more bytes each, P2 first then P1. Finally, a one byte value equal to the number of parameters (zero if there are no parameters) is pushed to the stack and execution then jumps to the memory address of the subroutine, given by the value of ADDR.

Within the USR subroutine, values are progressively removed from the stack by using the PLA instruction, one PLA to get the number of parameters (usually the first instruction executed in the machine-code), then pairs of PLAs to fetch the parameters (high-byte first) starting with P1, then P2, in the reverse order from which they were originally put on the stack. At the end of the USR subroutine the stack should only contain the two-byte address



of the next Basic instruction. This is pulled off the stack by execution of the RTS instruction, and program execution returns to your Basic program.

It is possible to pass a two-byte value back to Basic from the USR subroutine by including instructions to load it to memory locations 212 and 213 ($D4 and $D5), low byte in 212. On return to Basic, the value will then appear in variable A, in the above example, or in whatever other variable has been assigned the value of the USR function in your program.

All the best for the future!"

REPAIRS AND EMULATIONS

Charlie Ayres from Wood Green in London is another who has connected up a PC with his Atari and shares some of his findings, along with some advice on repairs and some help with Multi-Boot.

"Back in issue 79 I wrote about repairing a defunct power supply, Part No CO 60592-34/TM 7498, which had a hidden fuse in a sealed unit. I have now had another failure with a power supply Part No CO 61516/34 which is supposed to be used with a 1010 recorder. This one is a lot trickier to repair but it can be done. First of all it is in a completely sealed unit with no way to obtain entry but there is a groove around the middle of the unit. If you carefully cut around the groove with a hacksaw it is possible to get to the internals without too much damage. Inside is a transformer which has connected across two terminals a small black rectangular object. This is a thermal fuse and is marked:- UMI D3, X21, 102 Degrees C,3amp,250 Volts. Unfortunately Maplins do not stock a replacement for this item but I have tried a 2 Amp thermal fuse and although the voltage is too low it does at least work. Does anyone know where I can source the correct thermal fuse? It is not too easy to assemble the case again as there is no way to connect the two halves but I have cheated by using black PVC insulation tape and it makes quite a secure job.

I am a serious collector of old computers since I bought my first Atari 800XL way back in the early eighties and I now have 28 assorted computers all in perfect working order from the 800XL up to an Olivetti PC and I was very interested in the items about emulators and using a PC to run Atari programs. I have tried GEMULATOR to emulate an ST on the PC and it is a great program which will also enable you to then emulate an 800XL on the ST emulator. Quite a long winded way to get back to the Classic but it works. At the moment I am trying to get Pacifist and also Tosbox to work on the PC but although I can get Stosser disk 11 to run OK there is a problem with other disks which will either give a blank desktop without the drives showing but with the Busy Bee working with the mouse or else the first screen will come up and then the computer locks up. If anyone has the answers to these problems I would be very happy to hear from them.

I have recently been looking into the possibilities of connecting an STE to the PC so that I can utilise the spare space on a 1.2 Gig hard drive to save Atari programs and also to use the CD ROM drive. This appears to be something which can be done using a null modem cable and a program called Ghostlink. I would also like to know if it is possible to connect a 210 Meg Seagate drive to an STE using an ICD link. This was mentioned in an Atari ST Review mag way back in 1992 and it was



rather expensive then. Is there another way to connect these two that has been discovered since then and what will the cost be or is there anyone who has managed to complete the connections and get their systems working properly? Please let me know.

In reply to the letter from John Hull about transferring from disk or cassette I have a copy of MULTI-BOOT XL which will transfer programmes from both to a disk and will run when OPTION is held down while switching on. This gives you a menu to pick from and you can select the program you wish to run. I have tried to convert my tape collection to disk using TRANSDISK but there are some programs which will not transfer across but there is a possibility that you can do it with MULTI-BOOT XL. This works with games but I have not tried it with text files and so cannot say whether this is possible. This disk came with a collection that I purchased quite a long time ago so I do not know whether it was released as PD or if it is a commercial program. There is a slight problem that may occur when copying from tapes and that is if there is a screen loaded first and then a gap in the tape before the program loads you may get just the title screen copied and then the program thinks it has finished the copy so it stops. Perhaps Les can find where the programme originated from and whether it can be used in the PD library.

This may get some response from readers so I will close but I am enclosing an order with this letter (or article if it is too long for the letter page). From the contents of issue 82 it seems that there are only the same few regulars that are contributing to the the magazine so lets give him all the help we can in 1998 so that PAGE 6 can continue to give us, the Classic Diehards, the support that he has continued to give us for many years."

OF MANY THINGS

Dave Bennett of Coventry has loads of things to get you thinking for next time:

"I have not been using my 800XL for some time as I seem to be kept busy despite having been retired for over 5 years now! I am still interested however and do intend to get back to it eventually. I have a reasonable number of games and programs and try to keep up with the news, so I was very pleased to see the latest issue of your magazine arrive.

You said that you would like something for the letters page, so perhaps some of my comments could help to fill in. First, the uses of the Atari computers - it seems that many people still use them for serious use, not just games and I use my ST for personal finances, using K-Spread version 2 that came free with a magazine at one time. I also use First Word Plus version 2.02 regularly, mainly for letters and intend to keep on using these programs indefinitely. With both of these programs I would like to have a copy of the manuals but I seem to remember having difficulty finding even updated versions with manuals when I tried many years ago. Are there any sources of these manuals still available, possibly with updated and hopefully compatible versions of the software?

I bought Railway Tycoon for the ST a few years back, from a computer shop that was clearing its Atari stock and found a bug - at times the railway network put in different lines to those entered on the 'map' and the program either allowed collisions, refused to reroute trains, or signals malfunctioned. When I eventually contacted the help line one person seemed to remember there being a bug at one time, but I was told it was now old and I should return the game to the shop where I bought it as they no longer supported it in Atari format. Fortunately it seems to run okay most of the time and I can cope, but presumably this now applies to all programs and any assistance or information about faulty programs must be through your pages.

Anticipating problems with repairs in future, I bought a spare 800XL and 1040ST when I got the chance and a list of contacts who can make repairs could be useful, as I see this as a real problem.

In passing you may all like to know that the reason for someone selling me the spare ST was because of the different IBM system used at schools, and the relatively poor programs that came with the machine, despite their favourable impression of the machine itself. When I compared the programs provided with my spreadsheet and word processor programs I saw the Atari failing - without contact with a magazine or user group to get better and extra programs I too would have used a different machine!

While I intend to keep my Atari computers I would like my daughter and family to be able to use my programs on their IBM PC. Neither of us has a modem so is there an emulator program and instruction book for the ST and XL available by post?

Also can anyone tell me how I can tell if second-hand hard disk or disk drives are Atari compatible without actually trying them out?

Can you please help me with a solution to Silicon Dreams? Ideally I would like a complete solution so that if I get stuck again I can find a way forward, but at present I could do with some help in Snowball. According to the leaflet enclosed with the game there should have been a hint sheet available as an extra at some time - presumably no longer for sale - but can anyone let me have the information? I got to the lift and seem to need a spanner to open a hatch in the roof of the lift. I think that I need to find a maintenance robot first, but despite going all around the available part of the ship I can't find a spanner or robot!

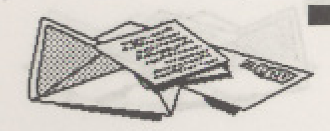
In passing does anyone know why the tape copy I have was issued by Level 9 Computing as 3 titles, plus an adventure called Lords of Time, yet the disk version (while giving credit to Level 9) seems to be issued by Rainbird? As a minor point, when did BT get involved with computer games, since Rainbird seems to have been part of BT - and does anyone know if they still deal with computer games? Somehow I don't think of BT in connection with computer games!

Finally now that magazines for the ST seem to have all ceased publication, is it possible to include a section on the ST in New Atari User, since I see that you still have an ST disk library?

Good luck with the magazine, keep it going!"

Some interesting points here that I can help with but perhaps the most interesting is the suggestion of getting together a contact list of people who can repair both STs and the Atari Classic. We often get calls asking for advice on repairs but don't know what to advise any more. About all I can suggest is that the enquirer buys another machine through Micro Mart, the local paper or at a car boot sale since they can often be picked up for less than the cost or repairs. There must be someone around though capable of effecting repairs on the Atari so if you have any contacts let us know so that we can pass them on.

In Silicon Dreams the spanner you need is found at the



bottom of the lift shaft in a toolbox. How do I know this? Easy, I typed in the Tipster column this issue where you will find lots of info on Silicon Dreams courtesy of James Mathrick. I have had this for some time but kept putting off including it in view of the amount of work needed to get the maps into a usable form for the magazine. Your letter has spurred me into action, Dave. (I might regret it though as I am typing this before I start work on those maps!)

Your comments about BT are interesting as, looking back, it seems that almost everybody wanted to get involved with the computer scene in the 80's. Presumably they all thought that there was big money to be made or wanted to get in ahead of competitors in case it really took off. Not surprisingly there was not enough consumer money to go round and almost all the 'outside' companies have long gone. Rainbird was, indeed, British Telecom's attempt to corner the home computer market and they started by re-packaging existing software such as Level 9 adventures. Whilst BT couldn't write software they could provide all the fancy packaging, advertising and hype. Obviously Level 9 were interested, as were many other 'small' companies but I seem to recall that almost everybody got 'burned' in the end. All the promises of riches came to nothing. I think Thorn EMI were the first big 'non-computer' company to become involved with software as they had the distribution rights to the Atari VCS and initially the Atari computers. Others, who you might not expect to see involved included the Daily Mirror who were responsible for developing the very program (Fleet Street Publisher) that I have used for years to put this magazine together. Incidentally my son has now started using PCs at school and is adamant that there is nothing on the PC available to the home user that comes anywhere near Fleet Street. Atari wins again! Writing this has been quite interesting so perhaps someone could come up with an article on unlikely alliances involving computers and companies that you would not expect to be involved?

In regards to an ST section, as you know we used to have one but because of the nature of the ST it was almost always restricted to software reviews. As the software disappeared so did the coverage. I have nothing against including more coverage of the ST but it all depends on whether anybody wants to write it. As always contributions of any kind are heartily welcomed.

As to the rest of your questions, Dave, I hope that other readers will help out next time.

GAME CARTRIDGES

Sue Hasnip from Norwich dropped us a short note which reads: "Just received my New Atari User magazine. What I am looking for is Atari XE video game cartridges. Can you please help me?"

❢ *I assume you mean the XE game system rather than the XE computer but fear not they are exactly the same. All ROM cartridges for the Atari run on the games system as well as the computers. There are still a good number of cartridges around, mainly from Derek Fern at Micro Discount (see adverts in back issues) but I would strongly recommend that you go along to SAMS at the Bingley Hall in Stafford (see news section) where you will almost certainly be able to pick up some real bargains. It will be well worth while to stock up. If you want to send to the USA for software check out the news page this issue for details of a company that has an enormous number of cartridges available, many of which have never been available in this country before.*

... AND FINALLY

I was delighted to get a short note from Paul Lay who wrote some of the very best programs published in Page 6 and who once received a Page 6 readers award (presented as I remember at one of the big Atari shows). I had feared that Paul had long departed into the PC world and would not be with us much longer but I am glad to have his continuing support. His letter has nothing to do with computers but might help to satisfy the curious.

"I was extremely pleased to see Issue 82 of NAU as someone had said to me that it had come to an end. Personally I didn't believe it for an instant: when NAU's time comes I am sure it'll go out with a special final issue as opposed to simply disappearing. Even though I haven't done anything Atari for years, NAU is always an interesting read reminding me of all the fun I had back on the old 8-bit.

This probably won't be the only letter you get on this subject as I'm sure you've now intrigued many NAU readers, especially those of us whose woodwork skills are pretty much limited to a couple of dodgy book-ends made many years ago at school - exactly what items do you make for the craft fairs? Assuming that you could send them through the mail, why not include a leaflet with the next issue of NAU offering them for sale?"

❢ *I am not sure how much crossover interest there would be through the mag since what I do is rather specialised. If you have read the Inspirations box over the past few years you might have a clue as to to my interests. What I make is items in fretwork (or scroll saw work for the Americans) depicting the life and culture of the Native American Indian tribes. My fretwork is basically the cutting of finely detailed shapes in different types of wood, using the colour and grain of the woods in different combinations to enhance the finished piece. It is far better to see it than read about it and I haven't yet figured out how to put together a catalogue that shows exactly what I do (or at least one that is not going to cost about a fiver a time to produce!). We travel all around the country every weekend to not only craft fairs but also things like County Shows and Town shows and one or two readers (or ex-readers) have already come up and said "are you the Les Ellingham who ....". If anyone is interested in having a look and coming to say hello, I will gladly send a list of all the places we will be during the coming year.*

Well, there you have a goodly assortment of letters answering almost all the queries from the Issue 82 Mailbag. This is the sort of response we need to keep interest alive. Trouble is there are not quite so many cries for help this time to spur you on to writing for the next Mailbag but I am sure you can think of new topics or continuations on some of the themes raised this time. Anything is welcome.

I would like to thank all correspondents this time but especially Terry Chamberlain and Charlie Ayres who accompanied their letters with versions saved on to 8-bit and ST disks respectively, it sure made my work a lot easier. Don't think that you have to send a disk, however, the most important thing is that you write something so your thoughts can be shared with other readers. I'll be happy to type it up providing that you can write it up.

Don't forget to write to:

MAILBAG
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1TB



OBJET D'ART

Joel Goodwin continues his series for the more advanced programmer

2. Foundation

One of the many 'privileges' of doing research at a university is that you get "encouraged" to attend lectures given by other people doing research. Normally these lectures are an excellent opportunity to catch up on some much-needed sleep, but occasionally something useful can be gleaned from a visiting speaker. Back in 1995 I attended a talk on 'mathematics in industry' with the hope of discovering what would be important for netting a job in the future. The guy who gave the talk started to get quite excited about something called 'Object-Oriented Programming' (OOP) and how essential it was for complex software development. I had never heard of the term before and asked the speaker to elaborate on the subject. Bad move. The only thing I managed to understand was that it was about 'objects' which I had cunningly deduced already. So in the end I had to find out myself. Another privilege of doing research at university is the great access you have to a computing section of the university library.

After a lot of reading, I now have a pretty good idea of what this OOP is all about and why it is so much better than sliced bread.

THE MORNING AFTER

Last issue, we looked at the four key principles of OOP. The first of these was data abstraction, which means we can develop our own types of variables (datatypes). That means, we need not deal with just simple floating point numbers and strings, but more complicated variables like database records or the status of enemy planes in a game. The individual pieces of data within a variable (or object) will be referred to as 'members'. For example, NAME and ADDRESS might be two members in a database record.

The second principle was encapsulation, which brought us from the ideas of datatype and variable to those of class and object. A class is a datatype coupled with subroutines relating to the class. Some of the data and subroutines can only be accessed by the class subroutines. In this way, we divide up the class into 'public' and 'private' sections.

The third principle was inheritance. This allows us to derive a new class from an old one, where the new class can use all the data and subroutines that were developed in the original class. The final principle was polymorphism where derived classes can replace an inherited subroutine with a different one. In this way, different derived classes will have, to all intents and purposes, a common subroutine which can behave entirely differently for each class. This improves the flexibility of code when reused in later programs, as explained last issue. (Polymorphism is an important aspect of OOP which we shall return to next issue.)

However, there are no languages for the 8-bit Atari which support OOP techniques. Planning a program with an OOP-like structure and adapting it to your chosen language is the best way to proceed ... unless you have a macro assembler for machine language projects. This issue we'll look at how we can construct OOP support using macros in MAC/65.

THE GENERAL IDEA

How would a computer handle storage and access of object data? Well, it would probably work out how many bytes are needed to store a typical object and then, with this information, reserve the memory for as many objects as the main program requires. Whenever the program wanted to access a member of a particular object, the computer would have to look at the class structure as it would need to find out where this member is located within the object data. To make this clearer, consider a simple POSITION class. In a POSITION object, we have PX and PY members. Each member will be one byte long, so a POSITION object will need two bytes storage space. The structure could be summarised by the following.

```
POSITION = 2   ;Object length
PX       = 0   ;Index for PX member
PY       = 1   ;Index for PY member
```

So PX and PY are indices for members within a POSITION object. We could reserve spaces for POSITION objects POS1, POS2 and POSQ by using this piece of code:

```
POS1    *=*+POSITION
POS2    *=*+POSITION
POSQ    *=*+POSITION
```

Then we could read and write to these POSITION objects.

```
LDA #00
STA POS1+PX  ;Initialise POS1
STA POS1+PY
STA POS2+PX  ;and POS2
STA POS2+PY
LDA POSQ+PX  ;Get POSQ member PX
STA POSQ+PY  ;Store in POSQ member PY
```

This is great if we know in advance what objects we wish to manipulate. However, this is no good if we want to generate a subroutine which can deal with any POSITION object. We can use indirect indexing to solve this problem. The following piece of code will initialise the POSITION object pointed to by the zero page vector POSVEC.

```
INIT LDA #$00        ;Accumulator is zero
     LDY #PX         ;Y-register points to
                      member PX
     STA (POSVEC),Y
     LDY #PY         ;Y-register points to
                      member PY
     STA (POSVEC),Y
     RTS
```

The ideas presented here can be formalised to cater for any class. This is where the macros come in.

```
;
; CLASS SYSTEM FOR MAC/65
; By Joel Goodwin 11-1-97
; ------------------------
; OBJECT must be defined as ZP
;
      .IF .NOT .DEF OBJECT
        .ERROR "OBJECT not defined"
        .END
        .ENDIF
      .IF OBJECT>$FE
        .ERROR "OBJECT not ZP vector"
        .END
        .ENDIF
;
; NEWCLASS
; Start of class definition
;
      .MACRO NEWCLASS
      .IF %0<>0
        .ERROR "USE NO PARAMETERS"
        .ENDIF
@@CURPC .= *
       *= 0
      .ENDM
;
; ENDCLASS
; End of class definition
;
      .MACRO ENDCLASS
      .IF %0<>0
        .ERROR "USE NO PARAMETERS"
        .ENDIF
      *= @@CURPC
      .ENDM
;
; BYTE, DBYTE, BYTES, CLASS
; Reserve memory
;
      .MACRO BYTE
      .IF %0<>0
        .ERROR "USE NO PARAMETERS"
        .ENDIF
      *= *+1
      .ENDM
;
      .MACRO DBYTE
      .IF %0<>0
        .ERROR "USE NO PARAMETERS"
        .ENDIF
      *= *+2
      .ENDM
;
      .MACRO BYTES
      .IF %0<>1
        .ERROR "USE 1 PARAMETER"
        .ELSE
        *= *+%1
        .ENDIF
      .ENDM
;
      .MACRO CLASS
      .IF %0=0 .OR %0>2
        .ERROR "USE 1 OR 2 PARAMETERS"
        .ELSE
        .IF %0=1
          *= *+%1
          .ELSE
          *= *+%1*%2
          .ENDIF
        .ENDIF
      .ENDM
;
; OGET
; Get A from object data
;
      .MACRO OGET
      .IF %0>1
        .ERROR "USE 1 OR NO PARAMETERS"
        .ELSE
        .IF %0=1
          .IF %1>255
            .ERROR "DATA OUTSIDE 256 BYTE RANGE"
            .ELSE
            LDY #%1
            .ENDIF
          .ENDIF
        LDA (OBJECT),Y
        .ENDIF
      .ENDM
;
; OPUT
; Put A into object data
;
      .MACRO OPUT
      .IF %0>1
        .ERROR "USE 1 OR NO PARAMETERS"
        .ELSE
        .IF %0=1
          .IF %1>255
            .ERROR "DATA OUTSIDE 256 BYTE RANGE"
            .ELSE
            LDY #%1
            .ENDIF
          .ENDIF
        STA (OBJECT),Y
        .ENDIF
      .ENDM
```

Listing 1

THE CLASS SYSTEM

Listing 1, OBJECTS.M65, is the MAC/65 code for a class management system. In the listing eight macros are defined: NEWCLASS, BYTE, BYTES, DBYTE, ENDCLASS, CLASS, OPUT and OGET. You need to do three things to use the macros in a MAC/65 listing. Firstly, you must set the label OBJECT, at the start of your listing, to a zero page location which can be used as a vector to point to objects in memory (remember, vectors are two bytes). Secondly, a '.INCLUDE #D:OBJECTS.M65' instruction must follow the definition of OBJECT; whenever assembling your program, OBJECTS.M65 must be stored on the disk in drive 1. Thirdly, your program must NOT use the label @@CURPC.

Let us examine the macros which are used to create a class.

NEWCLASS

This denotes the beginning of a class definition.

ENDCLASS

This denotes the end of a class definition. It should be labelled with the class name. The label will be equal to the number of bytes an object of the class takes up in memory.

BYTE

Within a class definition, this is used to create a member which is one byte long. It should be labelled with the member name.

DBYTE

As BYTE, but the member is two bytes long. It should be labelled with the member name.

BYTES numbyt

As BYTE, but the member is 'numbyt' bytes long. It should be labelled with the member name.

Using these macros, the POSITION class can be defined more clearly.

```
          NEWCLASS    ;Start of a new class
PX        BYTE        ;PX member
PY        BYTE        ;PY member
POSITION ENDCLASS     ;End of class, named
                       POSITION
```

The final result is exactly the same. POSITION has the value 2 and PX and PY have been defined similarly. Now we proceed to the macros with which we manipulate objects.

CLASS cname[,numobj]

This will reserve memory for an object of the class 'cname'. If 'numobj' is specified then memory for 'numobj' objects is reserved instead of just one.

OGET [mname]

This macro is meant to be used as part of the program code. Upon execution, it will load the accumulator with the value of the member 'mname' of the object currently specified by OBJECT. If no 'mname' is specified, then the last member specified by an OGET/OPUT is used (provided the Y-index register has not been altered, see later).

OPUT [mname]

This macro is meant to be used as part of the program code. Upon execution, it will store the accumulator in the member 'mname' of the object currently specified by OBJECT. If no 'mname' is given, then the last member specified by an OGET/OPUT is used (provided the Y-index register has not been altered, see later).

We can continue to rewrite the POSITION example with these macros. First of all, we reserve memory for the POSITION objects POS1, POS2 and POSQ.

```
POS1    CLASS   POSITION
POS2    CLASS   POSITION
POSQ    CLASS   POSITION
```

The piece of code where we set values in POS1, POS2 and POSQ is unchanged. This is

the most efficient way to manipulate specific objects: use the address of 'object+member' (e.g. POS2+PX). If a member is longer than one byte, then add on a further number to refer to which byte you wish to access (e.g. if PX was actually two bytes long, we could access POS2+PX for the first byte and POS2+PX+1 for the second byte).

The last POSITION code example can make use of the new macros. It can be rewritten in the following way.

```
INIT  LDA   #$00  ;Accumulator is zero
      OPUT  PX    ;Store zero in PX
      OPUT  PY    ;Store zero in PY
      RTS
```

Before calling INIT, the address of the object to be initialised should be stored in the vector OBJECT.

SUBTLETIES

OGET and OPUT select a particular member within an object by using the Y-index register. The one drawback to this is that you cannot use OGET/OPUT with a class that needs over 256 bytes to store an object, because the Y-index register can only take values from 0 to 255. The advantages of using the Y-index register means faster access and a minor capacity for optimisation - adjacent OGET/OPUT calls can reuse the current value of the Y-index register. For example:

```
      OGET  PX
      CLC
      ADC   #$04
      OPUT        ;Add 4 to PX
```

This will take the PX member from the object pointed to by OBJECT, add 4 to it, and store this value back in the PX member. We did not have to specify PX the second time. However, if we modify the Y-index register between these calls, we cannot do this.

```
      OGET  PX
      TAY
      INY         ;We want to add 1
      TYA         ;to PX
      OPUT
```

This example is wrong because we have altered the Y-index register. The OPUT must specify the PX member again, to set the Y-index register to the correct value.

If we wish to create an array of objects, we can use the CLASS macro to reserve enough memory for as many as we want. For example if I wanted 50 POSITION objects for 50 monsters in a game, I could use the following line:

```
MONSTERS  CLASS  POSITION,50
```

One other point must be discussed before we go on to encapsulation. You may be tempted to use...

```
INIT  LDA   #$00
      OPUT  PX
      INY
      OPUT
      RTS
```

...which is little more efficient than the earlier INIT subroutine. After all the PY member is just one byte from the PX member. This is a bad idea. If, later, the class was modified so that PX and PY were not even next to each other, this piece of code would not work any more. Always use the member name - never use a short-cut as it makes assumptions of the structure! There are two valid exceptions to this rule.

If we had defined POSITION using DBYTEs...

```
          NEWCLASS
PX        DBYTE
PY        DBYTE
POSITION  ENDCLASS
```

...then because each member is more than one byte long then we could legitimately consider PX and PX+1 as well as PY and PY+1. In this case, there would be nothing incorrect in using INY to access the next byte in an OGET/OPUT sequence.

```
      OGET  PX
      STA   TEMPPX
      INY
      OGET
      STA   TEMPPX+1
```

You must remember not to modify the Y-index register in any other way between two OGET/OPUT instructions.

The other case where altering the Y-index register directly is valid occurs when a subroutine is manipulating a whole object in one go, such as in initialising. If we had a class called LARGE then the following subroutine would initialise a LARGE object:

```
INITLARG  LDA   #$00
          TAY
IL0       OPUT
          INY
          CMP   #LARGE
          BNE   IL0
          RTS
```

Here we run the Y-index register from 0 to LARGE-1 and zero every byte in the chosen LARGE object.

ENCAPSULATION IN MAC/65

We have considered only the data aspect of classes; how can we implement subroutine encapsulation? There is no concrete method with which to achieve this. The closest we can get is to isolate the class subroutines in another file. In fact, a 'class file' should be developed which includes both the class definition and accompanying subroutines. This encourages the independence of the class implementation by divorcing it from the program it was originally intended to support.

Normally, a class subroutine will be designed to operate on a general object. It is recommended that the objects are passed to class subroutines through OBJECT (that is what OBJECT was designed for, after all), just as in the earlier INIT example for the POSITION class. This common interface also promotes encapsulation. This is not encapsulation in the true sense of the word because class subroutines could still be used, mistakenly, for objects of another class or worse, without an object at all. In an OOP language such mistakes are usually picked up by a compiler.

We have still not addressed the other aspect of encapsulation: declaring public and private members of the class. MAC/65 has a very simple facility with which we can accomplish this. When a label begins with a question mark, it automatically declares that label as being "local". This means that if we sandwich a block of code between two .LOCAL directives then all local labels used inside that block do not exist outside of it. Therefore if we always surround a class file with .LOCAL directives, all local labels can be considered to refer to private members and subroutines. An example will make this clearer. Suppose we have a BOX class. A BOX object contains a number ?NUMBER which can only be set using the BOXSET subroutine and looked at using the BOXLOOK subroutine. The BOX class file is as follows.

```
          .LOCAL
          NEWCLASS
?NUMBER   BYTE
BOX       ENDCLASS
BOXSET    OPUT ?NUMBER
          RTS
BOXLOOK   OGET ?NUMBER
          RTS
          LOCAL
```

The only way to access the number in the box is to call BOXSET and BOXLOOK. Outside of the class file, the label ?NUMBER does not exist and cannot be used. Of course, we could cheat because each BOX object only contains one byte - that byte must be where the number is held. However, if we are going to cheat in such a way, then there is no point going down an object-oriented road in the first place.

This example only demonstrates private data. We could just as easily have constructed an example with a private subroutine. All we have to do is start a subroutine's label with a '?' and the subroutine is then private. Don't forget to place .LOCAL directives at the start and end of the class file.

THE FLAK CLASS

Now we'll look at a real class which will be developed using OBJECTS.M65 - the FLAK class. A FLAK object will represent a single graphics mode 0 character which will move around the screen. Developing a new class structure is usually a lot of hard work as it is important to get it right. There is plenty of literature on how to develop classes, but for our purposes we will just tiptoe briefly through the design of the FLAK class. The approach here is to decide first what subroutines are necessary by considering what a FLAK object is meant to do. Once the subroutines have been chosen, we then look at what data is necessary to support them.

We will need an initialisation subroutine INIT; practically every class has an initialisation subroutine. We will also need to manifest an object on the screen so PLOT and ERASE subroutines will be necessary. Both of these subroutines will need to calculate where, in the screen memory, an object is displayed. We will use a private subroutine ?CALC to do this. The final subroutine is MOVE which will update an object's position. We will also permit an object to move at a variety of speeds. To accomplish this, MOVE will only alter an object's position if MOVE has been called enough times, the exact number depending on what speed is specified.

Now we need to ascertain what data is contained by a FLAK object. Clearly we will need XPOS, YPOS and SPEED members. If SPEED is set to zero then an object will change position every time MOVE is called. The direction of a FLAK object will be given by DIR; 0 will mean north, 1 north-east, 2 east and so on up to 7 for north-west. If DIR is given the value 255, the object will be considered to be stationary. We will want to specify what text character represents the FLAK object, so we will need another data member called CHAR. All of the members so far are public. There is one private data member called ?COUNT. This will be used by the MOVE subroutine to determine whether it is time to alter an object's position or not.

The FLAK class is summarised in figure 1. The class implementation is given by listing 2. A closer examination of this listing will reveal class subroutine data is declared private (e.g. ?CALTMP) to keep the internal class mechanisms hidden from a main program. Also ?CALC needs to pass information to PLOT and ERASE, so a zero page vector ZPFLAK is used. This vector must be specified by the main program; this is to avoid clashes with any other zero page usage. There is also another input to the class subroutines; the ?CALC subroutine uses the screen memory address at locations 88 and 89 to locate the screen memory.

BREAK FOR COFFEE

If a class is written well and supported by


```
;
; Implementation of a
; FLAK class
; By Joel Goodwin 11-1-97
; ------------------------
; ZPFLAK must be defined as ZP
; Uses 88/89 for scrn mem addr
;
        .LOCAL
        .IF .NOT .DEF ZPFLAK
          .ERROR "ZPFLAK not defined"
          .END
          .ENDIF
        .IF ZPFLAK>$FE
          .ERROR "ZPFLAK not ZP vector"
          .END
          .ENDIF
;
; FLAK class definition
;
        NEWCLASS
XPOS    BYTE
YPOS    BYTE
DIR     BYTE
CHAR    BYTE
SPEED   BYTE
?COUNT  BYTE
FLAK    ENDCLASS
;
; INIT subroutine
; Initialises object
;
INIT    LDY #FLAK-1     ;Last byte
        LDA #0
?I0     STA (OBJECT),Y ;Store zero
        DEY
        BPL ?I0
        LDA #$FF
         OPUT DIR       ;Null direction
        RTS
;
; PLOT subroutine
; Plots FLAK object to screen
;
PLOT    JSR ?CALC       ;Plot where?
          OGET CHAR     ;Get char
        LDY #0
        STA (ZPFLAK),Y ;...and plot
        RTS
;
; ERASE subroutine
; Erases FLAK object from screen
;
ERASE   JSR ?CALC       ;Erase where?
        LDA #0
        TAY
        STA (ZPFLAK),Y ;Erased
        RTS
;
; MOVE subroutine
; Update object's position
;
MOVE      OGET SPEED ;Zero speed
        BEQ ?MV0        ;forces move
        LDY #?COUNT ;Add speed
        CLC             ;to counter
        ADC (OBJECT),Y
        STA (OBJECT),Y;Carry set
        BCC ?MF         ;means move
?MV0      OGET DIR      ;Do actual move
        BMI ?MF         ;255=no move
        TAX
        CLC
          OGET XPOS
        ADC ?MVXTABLE,X
        CMP #255
        BNE ?MV1
        LDA #39         ;left overshoot
?MV1    CMP #40
        BCC ?MV2
        LDA #0          ;right overshoot
?MV2      OPUT
        CLC
          OGET YPOS
        ADC ?MVYTABLE,X
        CMP #255
        BNE ?MV3
        LDA #23         ;up overshoot
?MV3    CMP #24
        BCC ?MV4
        LDA #0          ;down overshoot
?MV4      OPUT
?MF     RTS
?MVXTABLE .BYTE 0,1,1,1,0,-1,-1,-1
?MVYTABLE .BYTE -1,-1,0,1,1,1,0,-1
;
; ?CALC subroutine
; Calculate screen memory pos.
;
?CALC   LDA #0
        STA ZPFLAK+1
          OGET YPOS
        ASL A
        ASL A
        ASL A
        STA ?CALTMP   ;save Y*8
        ASL A
        ROL ZPFLAK+1
        ASL A
        ROL ZPFLAK+1  ;Y*32
        CLC
        ADC ?CALTMP   ;add Y*8
        STA ZPFLAK
        LDA ZPFLAK+1
        ADC #0
        STA ZPFLAK+1  ;Y*40
        CLC
          OGET XPOS   ;add X
        ADC ZPFLAK
        STA ZPFLAK
        LDA #0
        ADC ZPFLAK+1
        STA ZPFLAK+1  ;X+Y*40
        CLC
        LDA ZPFLAK
        ADC 88
        STA ZPFLAK
        LDA ZPFLAK+1
        ADC 89
        STA ZPFLAK+1  ;SCRN+X+Y*40
        RTS
?CALTMPBYTE
;
        .LOCAL
```

DISK BONUS

MITE

by Jason Kendall

The concept of MITE is simple, to push the various boulders into the BDU (Boulder Disposal Unit). In practice this proves difficult as boulders tend to get pushed against each other or the outer walls. Fortunately there are two modes of play - 'normal' and 'nearly'. Nearly mode allows you to miss out 1 boulder on each screen - recommended!

There are 18 areas to complete. A secret warp menu allows you to start from any area, try pressing a combination of the console keys! Pressing Fire terminates your go if you get stuck, and believe me you will.

You start with 3 lives. You score 10 points x area for each boulder, with a bonus of 100 x area on completion. If you complete area 18 your entire score is doubled. Extra men are gained at 4000 and 8000 points.

The other special feature of this game is a fully saveable high-score table. Even if you're not interested in the game itself, this is a good subroutine that you may want to use with other programs. The variable names are all self explanatory.

THERE ARE SEVERAL OTHER BONUS PROGRAMS ON THIS ISSUE'S DISK!

This program, with others, is the BONUS on this issue's disk. If you are not a disk subscriber you can still obtain a copy for £2.50 from NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1TB. Please make cheques payable to PAGE 6 PUBLISHING or order by telephone with your Visa or Mastercard on 01785 241153

good documentation, a programmer wishing to use the class should NEVER have to look at the class file. The only contact a programmer should have with the class is through public data and subroutines. To highlight this point, next issue we will look at a program using the FLAK class. By that time you will, hopefully, be unfamiliar with the class file again and will have to approach the class as an outsider.

I hope you'll join me next issue for the final leg of our journey into object-oriented programming.

FLAK	
Public	Private
XPOS	?COUNT
YPOS	?CALC subroutine
DIR	
CHAR	
SPEED	
INIT subroutine	
PLOT subroutine	
ERASE subroutine	
MOVE subroutine	

***Figure 1** - The FLAK class*

XL/XE PROGRAMMING

LISTINGS PRINTER

A neat utility for Epson printer owners

by David Sargeant

Fellow Atarians who use Epson-compatible printers soon become aware that Basic program listings are not always printed properly. Graphics characters are interpreted as control codes and inverse text is printed in italics. The reason for this is the printer uses its own internal character set, which is different to the Atari's ROM-based one.

The printer's manual has a section on its Dot Graphic capabilities showing that a graphic character can be printed from a pattern of dots stored in the printer's memory. It would seem possible to use the computer's internal character set for Dot Graphic codes which would enable the printer to print the desired characters.

However, this would not work for two reasons. Firstly, in the bitmap of an Atari character, the 8 bytes represent rows, whereas the printer requires the bytes to represent columns. Secondly, the routine that actually prints the program listing would need the Dot Graphic codes to be in ASCII sequence, not Internal Character Code sequence as they are in the computer's ROM set.

Therefore, a program would firstly have to calculate the necessary Dot Graphic codes using the Atari's character set as a basis before it could print the listings that the user required. These two processes would take a long time to execute so a better method would be to put them into separate programs. The calculation program would still take a fairly long time to execute, but it would need to be done only once to set up the code file.

THE PROGRAMS

THE CONVERTER - Dot Graphic codes are calculated for all 256 characters (the first 128 in 4 blocks because of the ASCII/ICC problem) and are stored in a separate file for access later by the Listings Printer.

LISTINGS PRINTER - After the Dot Graphic codes are read into the computer you are prompted to type the name of the file you want printed. At this stage you can also press the Return key to get a directory listed to the screen. When you have typed a file name the contents of this file are read into the input buffer. Starting at the beginning of the buffer, the first byte is checked to see if it is a printable character. If it is the relevant Dot Graphic codes are moved to the output buffer to format the first line. If it is the End-of-Line character the bytes in the output buffer are dumped to the printer and the next line is begun. This process continues until all the bytes in the input buffer have been used. You are then asked if you want to print another listing. Press Y or N depending on your needs. At any stage you can also press the Break key to abort the program.

THE LISTINGS

The various programs are included on this issue's disk, ready to run. A printed copy is available on request, see inside back cover for details.

HEY! HEY! it's The TIPSTER

SILICON DREAMS

Another of James Mathrick's adventure explorations this time, although in one or two places he admits that he is stuck. Still the info might help you to get further in these adventures and maybe you know how to get out of the places that are too hard for James?

SNOWBALL

I find this adventure somewhat tedious, but then I've not got too far. I've left the coffin (PULL LEVER) and climbed through numerous other mortuaries (Go to the control panel, press 3 buttons, return, climb on to the coffin, and go through trapdoor .... each time!) .... remember to keep a closed door between you and the Nightingales, and to keep still when they're around, though. I've continued in this fashion until I can go no further up, found the lift, and gone up to the black level. This appears to be the same floor as the one you get to by climbing up the elevator shaft and undoing the trapdoor with the adjustable spanner (found at the bottom of the shaft in a toolbox), although there could be a bug in the parser, as the text mentions a door and a trapdoor and I could be opening either. However, wandering around the black level has not helped me - I've gone around the toroidal walkway, and the transpex tubes above the walkway, and I have kicked the fragile tube to be sucked out into space before dying from suffocation (although in reality you would implode and explode before that happened!). I know you may have to find a stacker lift, as the game told me I needed one to move a coffin with a crewmember inside. Has this anything to do with the complex revival machinery perhaps?

That's all I have on this one, if you can help further please do as I would hate to see an adventure go to waste through pure illogicality.

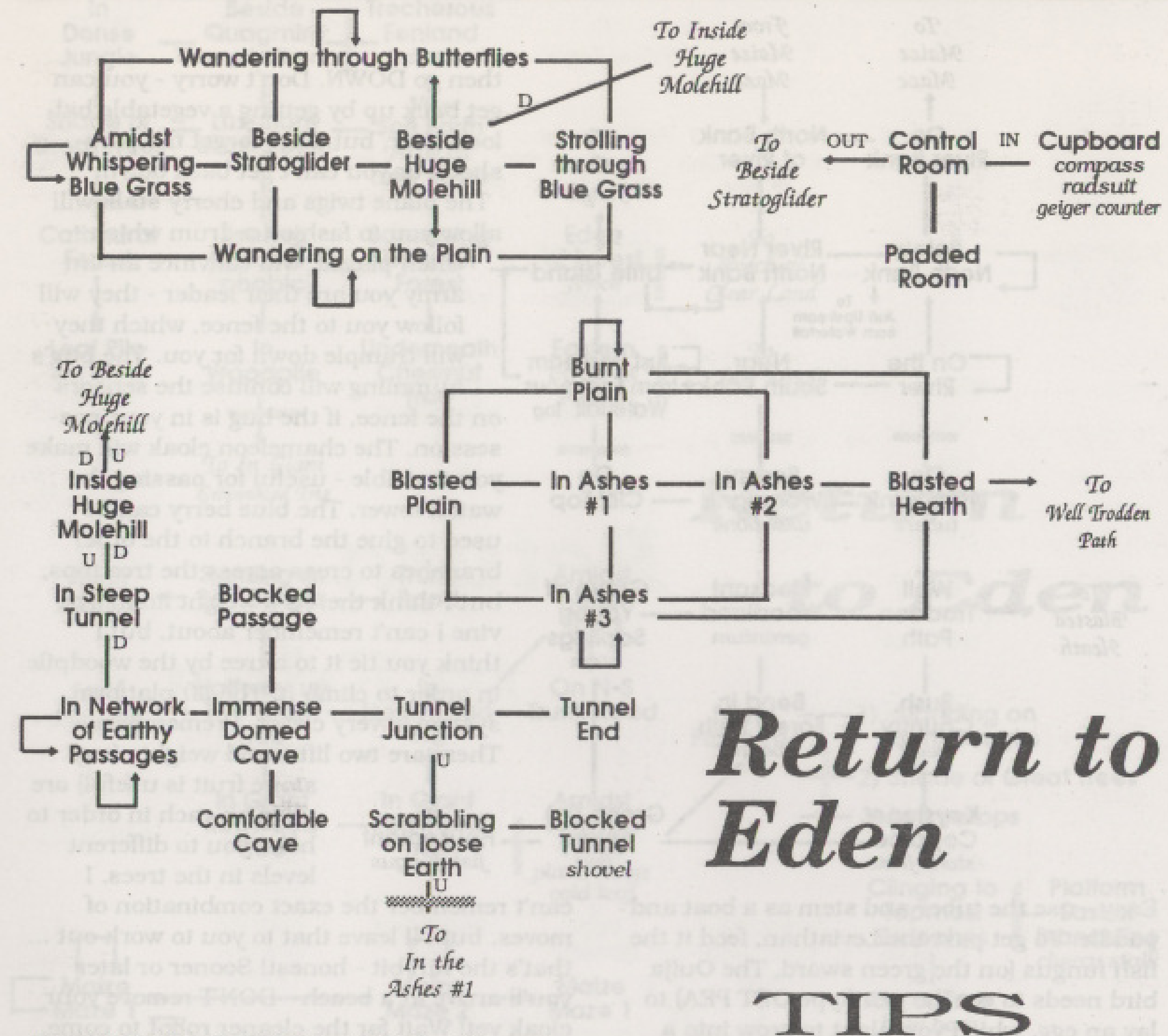
RETURN TO EDEN

This is the best of the Trilogy so far, as I have made it into the city and onto the surface, although I have become stuck with the railway system. Using the emergency cord in the train, I have been able to examine every station:

DREAM PARK STATION - is where you start. You can go UP at this station to get back into the tunnels through the grille (it is a one-way grille - remind you of Zork? Don't waste your time on it this time!).

HABIHOME STATION - I once found 'Gridpin + Clone Dental stylists' on level 13 but I froze with fear when I tried to enter it, and it has disappeared since, and I cannot find it again. I have tried all the obvious levels ... 13, 7, 999, 666, all the 100s and Level 9, but I can't find anything but habihomes, and the train ticket is one-way. (There is a travelpass somewhere in the game - I'll explain later)

CITY HALL STATION - Only home owners are allowed in, but I can't see where to buy a habihome, though.



UNKNOWN STATION - Only the Mayor is allowed past. Any ideas?

I am also mystified by the bevomat in the little house on the prairie. Getting in is easy if you like nukes, but facing a bevomat with a slot is much more difficult. PUT CARD IN SLOT, the obvious suggestion, doesn't work. In this area of the game, if you DROP or PUT anything, a dumpy droid tidies it away and you lose the object. Anyway, enough of my problems, on with the tips.

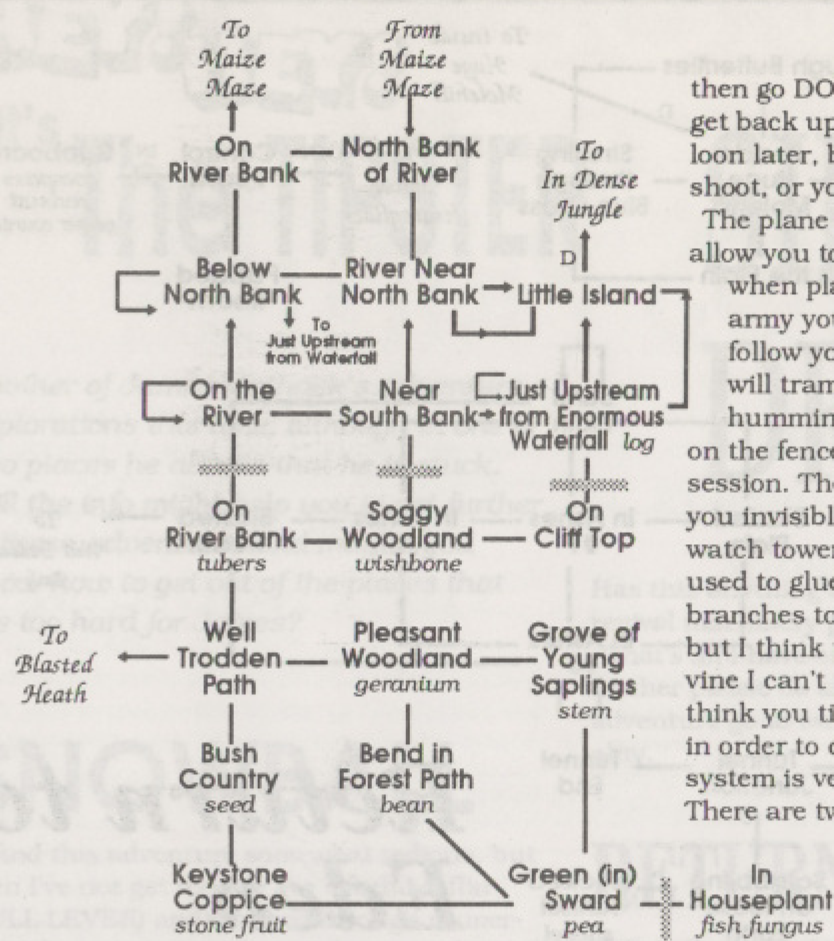
** ***MAJOR GLITCH*** ** Should you type SAY ALL the program will helpfully list every object in the game. Whoops, Level 9! (There's a better one later though!) The objects include Pepsy Koala and a Bubble Helmet which features in Worm In Paradise as well. In fact, this stage of the game has an immense feeling of deja vu if you have played Worm.

Return to Eden TIPS

Survive at the start by taking the compass, a Geiger counter (try IN while in the stratoglider) and wearing the radsuit. Find a large molehill, and DIG it. Go underground and find a comfortable cave. Sleep. After the blast, find the shovel, dig whilst 'scrabbling on loose earth'. Go up, after waiting when the counter screams.

Keep going east into the main game, but remove the radsuit or the animals will attack you. Stay still when the helicopter passes, and if the parrot pinches anything, type OOPS which will take you back to your last location. This gets boring but you will keep all your inventory.

You will need to EAT a PILL to keep you from dying from radiation sickness (and get you 150 points!). It is on a riverbank, and I've got a feeling you have to cross water to get to it.



then go DOWN. Don't worry - you can get back up by getting a vegetable balloon later, but don't forget the parashoot, or you can't get back down.

The plane twigs and cherry stalk will allow you to fashion a drum which, when played, will convince an ant army you are their leader - they will follow you to the fence, which they will trample down for you. The bug's humming will confuse the sensors on the fence, if the bug is in your possession. The chameleon cloak will make you invisible - useful for passing the watch tower. The blue berry can be used to glue the branch to the other branches to cross across the tree tops, but I think there's a weight limit. The vine I can't remember about, but I think you tie it to a tree by the woodpile in order to climb it. The lift platform system is very clever, I remember. There are two lifts, and weights (e.g. stone fruit is useful) are used on each in order to hoist you to different levels in the trees. I can't remember the exact combination of moves, but I'll leave that to you to work out ... that's the fun bit - honest! Sooner or later you'll arrive at a beach - DON'T remove your cloak yet! Wait for the cleaner robot to come, then wait for it to empty its load, the GET ON it, and ride in relative safety (from the seaweed) to the other end of the beach. Get off the robot before it dumps its load, otherwise you could get washed back again. You have to be careful when entering the corn field (DON'T wait on the beach for the weeder!), otherwise something nasty happens. You need to wait for a weedibot or some robot on the beach, then get on it to get a safe ride to the river - get off at this point.

Swimming the river I have explained, and you should soon find yourself with a credit card in a river tunnel. Watch out for the yobbos. Go and see Graunch - his offer of gambling is good, especially if you cheat, and so here are the answers to his riddles:

Easy - use the tuber and stem as a boat and paddle. To get past the Leviathan, feed it the fish fungus (on the green sward. The Ouija bird needs to eat the pea (type GET PEA) to lay an egg, which you plant to grow into a houseplant ... go INside it).

I thought that the geranium would allow you to regenerate should you die but that is not correct, so I don't know what it is for. Eating the bean makes you feel stronger, but its purpose is unknown. The fig leaf, I assume, is for wearing. The stone fruit is used for weight when swimming under a river later on (you will need the (suck)seed to breather underwater). The telescope is only for seeing where you are going. The wishbone is used in conjunction with an elastic band to catapult a cherry (actually a grenade - NEVER drop it!) and clear an otherwise impassable minefield.

The Maize maze is pointless - it does go in circles ... leave it alone.

The foxgloves, when worn allow you to carry a cold leaf later. Squeeze the sodden log to grow the parched bulb into a (para)shoot,

In Dense Jungle — Beside Quagmire *veg balloon* — Trecherous Fenland *cloak*

Shade of Great Trees — Luxuriant Undergrowth — *Vine* Soft Earth Amidst Tree Roots

Cathedral Forest — Feeling Claustro-phobic — Squeezing Through Forest — Edge of Forest *fence* → *To Patch of Clear Land*

Leaf Pile *ant army* — In Woodpile — Underneath Chestnut Tree — Eastern Edge of Forest → *To Clear Land*

To In Giant Greenwood Tree

Return to Eden

North Platform ← Standing on Bent Boughs — Trunk Road — Amidst Aerial Roots

South Platform ← Halfway up The Giant Tree — In Heartwood *bug* — On N-S Trunk Road

In Giant Redwood Tree — In Giant Redwood Tree — Amidst Tangled Twigs *plane twigs cold leaf*

North Platform — 1) Standing on Bent Boughs
— 2) Shade of Great Trees
— 3) In Treetops

Clinging to Topmost Branches — Platform East of Branchline *cherry stalk*

Tip of Tree *blue berry*

Maize Maze 1 → Maize Maze 2 → Maize Maze 1

To On the River Bank — Maize Maze 3 — *To On the River Bank*

To Maize Maze 3 ← Maize Maze 4

To North Bank of River

MAIZE MAZE

Genie in the box ...	COMPUTER
What goes on four feet ...	MAN
Rich man wants it ...	NOTHING
Our blood is cold ...	TREES
This blind god ...	LOVE
You all know me ...	NEWS
A great healer ...	TIME
When I came you didn't feel me	LIFE
A pet to many he belongs ...	FIRE

You have to give the big robot your credit card to pass him but I think that if you throw the flask (pull the plug on Big Robot, get the card, then throw the flask) at the Godfather, his bodyguards will drop it for you. (The flask is found on the roof). You may have trouble getting past the tramps and wreckage but if you push the pillars in their cable room, they will rush in to save their energy supply and you can

Return to Eden

To Below Surface

From Edge of Forest → Patch of Clear Land — Clear Land S of Observation Tower — NW Corner of Wheatfield → Middle of Wheatfield — NE Corner

From Eastern Edge of Forest → Clear Land — Clear Land W of High Wall — SW Corner of Wheatfield — Middle of Field of Wheat — In Wheatfield by River

On The Beach — Beach Beside Seaside — Beach S of Huge Wheatfield — E end of Beach → *To On the Beach*

In EW River Tunnel — Damp Tunnel *grounch*

N End of Echoing Hall Hall

Echoing Hall

S of Echo Chamber

On Roof *flask*

Between Double Doors *big robot* — To Blocked Vent Shaft *plug* — Vent System — Dead End Pipe

Amidst Twisty Roots *cutters* — At Cross Junction ⇄ Vent Junction (D) — End of Duct

Amidst Cables *cables pillars* — N End of Bare Wall — Air Conditioning Duct — Duct Junction — Hatch in Duct *busker* — (U) — Many Coloured Sand

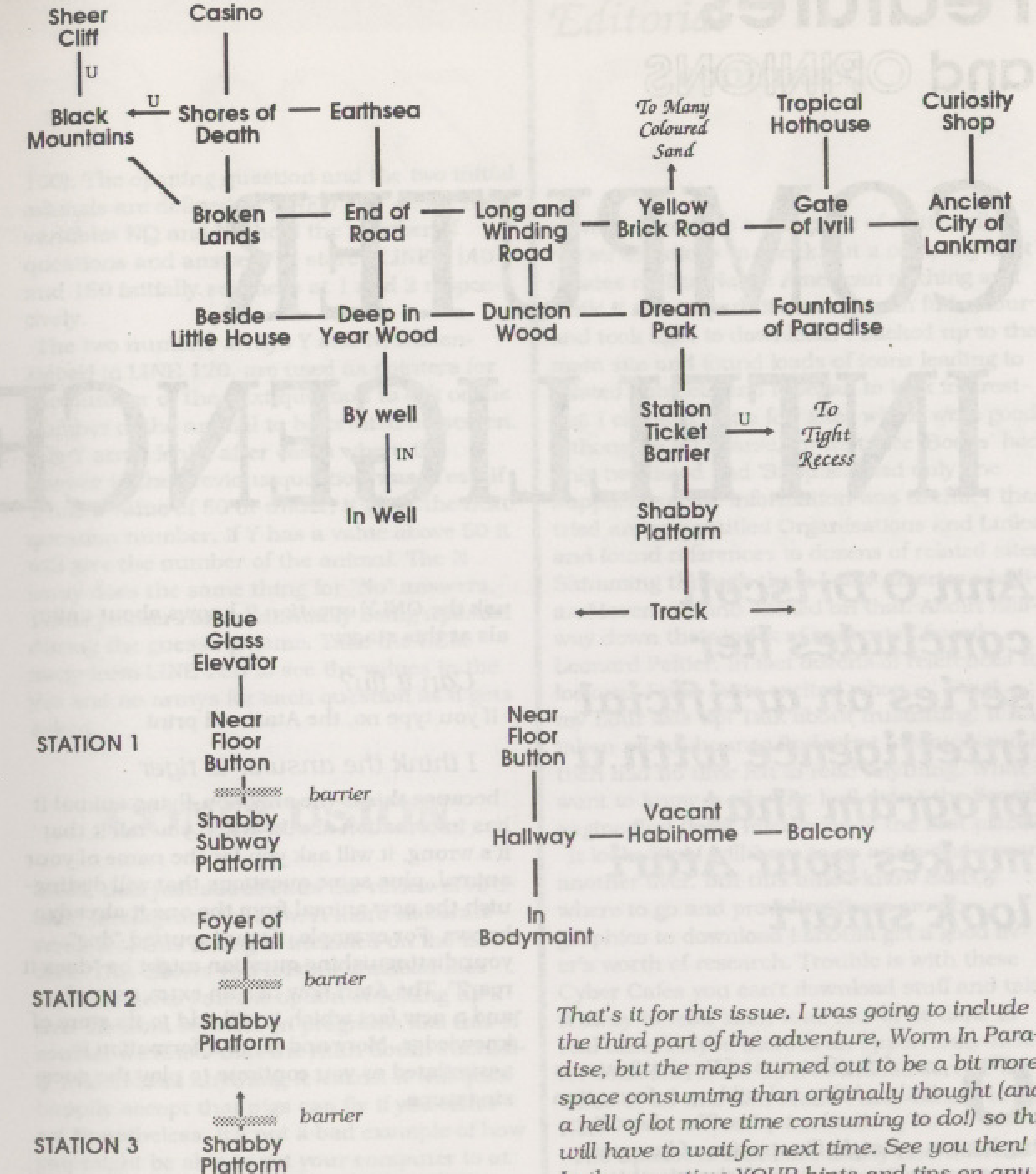
W of Fire — Hall E of Fire — Duct Terminus — Tight Recess *grating* (D) — *To Yellow Brick Road*

Throne *Godfather*

Below Surface — Swimming Underwater — Swimming Through Water Plants — Swimming Further Downstream — Near Riverbank — On Riverbed — Swimming Under Walls *credit card*

To NW Corner

To EW River Tunnel (U)



get past them. The grating is passed through from the other end. I cannot, however, solve the problem with the cutters and the roots. GIVE the CARD to the busker to get up topside. You will find the train ticket if you tear the packet you find in the Well of Souls. If you use the riverboat, you can go to the casino to get more money, but I believe this is pure luck. Otherwise I'm stuck. Any ideas?

That's it for this issue. I was going to include the third part of the adventure, Worm In Paradise, but the maps turned out to be a bit more space consuming than originally thought (and a hell of lot more time consuming to do!) so this will have to wait for next time. See you then! In the meantime YOUR hints and tips on any aspect of Atari gaming are welcome as always. PLEASE send them to:

THE TIPSTER
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1TB

Features and OPINIONS

COMPUTER INTELLIGENCE

Ann O'Driscoll concludes her series on artificial intelligence with a program that makes your Atari look smart

One of the features of Expert Systems is the ability to build up information on particular topics. The short listing here is a simple illustration of how you can get your Atari to do just that. In this example, the computer is going to learn about animals, but, as we'll see below, it could equally be used for all sorts of other topics.

When the program starts, the Atari knows about the existence of two animals - budgies and tigers. It also knows that budgies can fly and tigers can not. The opening screen asks you to think of an animal - let's suppose you come up with "dog". The computer will then ask the ONLY question it knows about animals at this stage:

Can it fly?

If you type no, the Atari will print

I think the answer is tiger

because this is the only non-flying animal it has information about. When you tell it that it's wrong, it will ask you for the name of your animal, plus some questions that will distinguish the new animal from the one it already knows. For example, if you inputted "dog", your distinguishing question might be "does it roar?". The Atari now has an extra animal and a new fact which it will add to its store of knowledge. More and more information is assimilated as you continue to play the guessing game.

HOW IT WORKS

The string Q$ holds the questions that can be asked to identify the animals while A$ holds the animals names. Each question can be up to 39 characters long (LQ in LINE 100) and each name can take up 10 character spaces (LA in LINE 100). The program is set to cope with up to 50 questions (N=50 in LINE 100). The opening question and the two initial animals are defined in LINES 140 - 150. The variables NQ and NA hold the number of questions and answers in store - LINES 140 and 150 initially set these at 1 and 2 respectively.

The two numeric arrays Y and N, DIMensioned in LINE 120, are used as pointers for the number of the next question to ask or the number of the animal to be printed on screen. The Y array looks after cases where the answer to the previous question was "Yes". If Y has a value of 50 or under, it gives the next question number, if Y has a value above 50 it will give the number of the animal. The N array does the same thing for "No" answers. These pointers are continually being updated during the guessing game. Take the REM away from LINE 765 to see the values in the yes and no arrays for each question as it gets asked.

CONCLUSION

Well, that just about ends the review of Artificial Intelligence for now. A more elaborate version of this listing is included on the issue disk. This allows you to save and load files and also gives you the option of setting up a new file from scratch. In programs like this of course, we know that the Atari doesn't actually understand anything it learns. It will quite happily accept that pigs can fly if you tell it so! Nonetheless, it's not a bad example of how you might be able to get your computer to at least fool some of the people some of the time!

THE LISTING

The program to accompany this article is on this issue's disk and also available as a printed lsiting upon request. See inside back cover for details.

Editorial

continued

I went directly to a sub page of a site called Native Creations to check out a company that creates replica Native American clothing and while it was superb it was again in full colour and took ages to download. I backed up to the main site and found loads of icons leading to related subjects and it began to look interesting. I checked out a few sites which were good although a bit sparse, for instance 'Books' had only two listed and 'Supplies' had only one supplier but the information was useful. I then tried an icon entitled Organisations and Links and found references to dozens of related sites. Skimming through them I saw American Indian Movement and clicked on that. About halfway down their index of contents I found ... Leonard Peltier. In fact dozens of references to look up. I was quite excited when .... Ping! ... my hour was up! Talk about frustrating, it had taken me an hour to find what I wanted and I then had no time left to read anything. What I want to know is why the hell didn't the Search engine find these references in the first place?

It looks like I will have to go again and spend another fiver, but this time I know exactly where to go and providing there are no graphics to download I should get a good fiver's worth of research. Trouble is with these Cyber Cafes you can't download stuff and take it away to read later, it all has to be done in real time. Maybe there is an opportunity here for someone to set up a download service for those of us who don't have ready access to the Net?

The upshot is that I did finally find information (even though I haven't read it yet!) that I could not possibly have found in any other way and this is where the true strength of the Internet lies. This is where it becomes a thing of wonder.

Just like I ran out of time I am now running out of room so have to go. Maybe I should have turned this into an article!

Les Ellingham

The CLASSIC PD ZONE

by Austin Hillman

FAREWELL TO FUTURA

As stated in the last issue Stuart Murray has reluctantly ceased publication of the disk based newsletter of the North of Scotland Atari User Group. The first seven issues of FUTURA have already been reviewed back in issues 59 and 64 of New Atari User. As the remaining disks have now been released into the Page 6 Library it is a good time to see what goodies they contain.

FUTURA EIGHT

Text articles include news about AMS7, a readers survey on the contents of FUTURA, and software reviews of The Curse, Hans Kloss and Darkness Hour. Plus reviews of VCS games based on films, an introduction to the Old Hackers group in America, and an index for the contents of the first six issues of FUTURA. *WORDWIZE*, *COUNTDOWN*, *SYNTRON 2* are three good games.

TURBOTOOL V2.6 - This is an old sector editor which has been updated and improved with Turbo BASIC. Version 2.6 is now a very powerful PD program and just as good as many commercial editors.

TURBO BASIC DOES WILD THINGS DEMO - This is a powerful little Turbo BASIC demo which shows the versatility of the TEXT command. *FRACTAL DRAGONS 1 & 2* - Those with an interest in Fractal Art will find these demos to be worth looking at.

TRONG - Is described as a cross between the Tron Light Cycles game and Pong, hence Tr-ong. A good two player game.

FUTURA NINE

Text articles include reviews of Tarkus, The Citadel, Chuckie Egg, Pengon, Enigmatix and Desert Falcon. Structured programming is made easy in Turbo Flyer part one. The coming of The Jaguar is announced. The Battle of the BASICs is analysed. Adding a Printer examines the Citizen 120D.

VALGUS 2 - superb Atari 8-bit version of the ST public domain Tetris clone of the same name. Valgus 2 features four-way action! The gameplay consists of building coloured rectangles around the centre square. Great game, good fun!

GLYPH FONT EDITOR - This is one of the best font editors I've seen for the Atari 8-bit! Glyph is packed with options. Full docs can be found on this disk.

ACE PLOTER - European Demo time again! This time we have Ace Ploter from Magnus of the World Federation of Mad Hackers.

BBK ARTIST - Seen by many as the best PD art package on the Atari 8-bit, BBK Artist is a feature-packed program with the ability to load fonts and place text onto pictures. All of the art options are pretty straight-forward. Stuart used BBK Artist to design the title screens for Futura. I find it to be a powerful and yet easy-to-use art package. Try out the many options and I'm sure you'll agree!

SOUND MONITOR PROFESSIONAL V1.2 - Originally featured in FUTURA 2. To celebrate the imminent release of a new NOSAUG PD double-sided SMP disk, which features documentation in English and loads of .SNG files, five of these new .SNG files are included on this disk as a sample of just how good this program is.

KOUNG - This is a little 2-player Pong game which has been programmed in Quick, it's good fun if you give it a chance! It's even better fun if you can remember the old Pong machines in the arcades!

FUTURA TEN

There are more text articles this issue, including 8-Bit News, Software Scene, and Turbo BASIC Flyer part two. There is 8-Bit trivia about the missing Atari cartridges. Hardware Warehouse looks at a joypad, and a new column called Atari 8-Bit Memories, looks back at good and bad memories of computing on the Atari.

MERRY MIX UP - Santa's mixed up all the Christmas presents - can you help him sort them out? Use a joystick to match the Christmas gifts. Festive fun for everyone!

THE FUTURA CHRISTMAS DEMO - A superb Christmas demo programmed for NOSAUG by ace Scottish programmer 'Spike' from Midlothian.

DISK COMMUNICATOR 3 - An excellent disk utility by Bob Puff. Pack one side of a disk into a single file and vice versa. Very user-friendly and good for expanded machines!

MINE HUNTER - More NEW software! This time from long-term Futurian, Bryan Zillwood. This great Turbo BASIC game is a clone of Minesweeper.

DISK SECRETARY - This excellent Turbo BASIC utility by Ron Fetzer of OHAUG is for use with The Turbo BASIC Flyer column.

A-ROGUE - Is a very addictive adventure game based on the classic mainframe adventure "Rogue".

FUTURA ELEVEN

On this disk you will find a huge text section covering many aspects of the Atari 8-bit. Futura Feedback returns with answers to your questions. The Atari 8-Bit Bookshelf begins a comprehensive list of books. Swift Spreadsheet and The Brundles are tested to the full in Software Scene. Hardware Warehouse investigates if it is worth buying an ST. Add to this 8-Bit Trivia, Hints & Cheats, 8-Bit News, etcetera, you will find over 700 sectors of text.

DISKUTIL - This is a superb new program

by Futurian Les Wagar from Canada. DiskUtil is a disk editor and utility package with many powerful features. An excellent DiskUtil Tutorial by Les Wagar himself is included.

THE SIMPSONS SLIDESHOW - All fans of the popular cartoon series, or indeed anyone who likes computer art, will enjoy this slideshow containing picture files produced on Atari Artist and BBK Artist by local NOSAUG member Ray Brown.

SISYPHOS - This is a demonstration version of an excellent puzzle game. It features some very good graphics and sound! The object is to push all of the boulders into the holes. Be warned - it is not as easy as it sounds! Use a joystick to guide the little man around the maze. Hours of fun guaranteed!

FUTURA TWELVE

Text articles in this issue include, Software Pricing and Atari 8-Bit News. Slammin', is the new column about SMP. Adding a Mouse is another new column and part one starts with buying a mouse. Hardware Warehouse installs a write-protect switch. Futura Feedback is an art programs. The facts about 3.5" drives are discussed. Turbo BASIC Flyer examines undoing the BASIC garbage quirk.

WINSTON SMILES - This is a surprising little animation. Just sit back and enjoy an alternative political broadcast!

THE "GET OFF OF MY BACK" DEMO - This is a demo by Kevin Cooke. It was created by the new DGS program, Demo Maker. Don't forget to read Kevin's review of Demo Maker before enjoying his demo.

NOTE INVADERS - A new and very original program by Kevin Cooke! Kevin has put a lot of work into Note Invaders and has produced an excellent educational game. Blast those notes!

TREASURER'S REPORT - Ron Fetzer of the Ol' Hackers A.U.G. in New York has come up with the goods again! Treasurer's Report is a very useful finance program.

E.S.P. - Is it the power of the mind or the power of the microprocessor?

FUTURA THIRTEEN

Text articles include 8-Bit news about AMS8, BaPAUG, AC, Club Cenacle, etcetera. Slammin', part 2 of Bryan Zillwood's column on SMP. Spring All Micro Show 1994. Software Scene, SOS Saturn and Fampy are reviewed. Adding a Mouse, Kevin Cooke examines the SAM Desktop system. The Atari 8-Bit Bookshelf, the book list continues with D, E and F. Hardware Warehouse, looks at the world of "G:" and your printer. FUTURA Feedback, your questions answered. 8-Bit Memories, by Kevin Cooke. The latest news about the Jaguar.

DOMMENU V1.39 - The new menu system, which can also display the documentation as well as run the programs. *VIEWDOCS* - An improved version of the text reading program which has been made redundant by DOMMENU.

For the first time the flip side is devoted to a single program. After requests for more adventure / strategy software, Futura presents *THE SLAVE CELLARS OF GOLGOLOTH* by Clayton Walnum. This is an enhanced version featuring digitized graphics. This is not really my cup of tea but it looks to be a good adventure.

FUTURA FOURTEEN

Text articles include 8-Bit news, Atari Corporation, Textpro 5.20X. Adding a Mouse, part 3, Missile Command, by Kevin Cooke. Software Scene, Vicky reviewed by Daniel Baverstock. VCS FUTURA - A tribute to Jay Miner. The VCS Rap, Horror Carts, Inside the VCS, David Crane, etcetera. 8-Bit Memories, with Colin and Heather Doyle. Hardware Warehouse, a cheap home-made printer interface. The 8-Bit Bookshelf, part 4, the letters G-L. Software scene, Daniel Baverstock reviews SAM Designer. AMS8 report, Kevin Cooke at All Micro Show 8. The Black & Red, a new column for the Atari Jaguar user. News from the UK and USA. Doom, The Special Edition reviewed. Slammin', part 3 of Bryan Zillwood's column on SMP.

DOMMENU V1.52 - An improved version of this excellent menu program is now adopted as standard for FUTURA.

Once again the flip side is devoted to a single program. Flip the disk, boot with BASIC and you can enjoy an amazing new hypertext system for the Atari 8-bit: *CARDSTAX V2.0*. Go beyond the boundaries of text with CardStax, who need a PC anyway!

FUTURA FIFTEEN

Text articles include 8-Bit news, ACPC Hardware, The Return of Atari Classics. DTP Atari8, Eric Bemrose begins a new Futura column on Atari 8-bit desktop publishing. In this first instalment, Eric asks "What is DTP?". In subsequent columns, he will examine some of the DTP titles available for the Atari 8-bit. The 8-Bit Bookshelf, part 5, the letters M-R. Games for the future, Kevin Cooke states what he wants to see on his XL/XE. Atari 8-Bit Memories. Adding a Mouse, part 4, Special Forces - Operation Blood II. VCS FUTURA - Cartridge Collecting by David Wyn Davies. The Black & Red, Jaguar Talk with Michael Clatworthy, Sensible Soccer, Val D'isere, Jaguar Owners Club. Checkered Flag reviewed. Jaguar Gameology with Daniel Baverstock, a detailed insight into the current computer games market.

LOTTERY NUMBERS, FACE UP PATIENCE and *BOMBS AWAY!* - Are three new programs by Bryan Zillwood. *REACTION & CONCENTRATION TESTER* - Is another great new program by Kevin Cooke. Instructions are available within the program itself.

CASSETTE / DISK MASTER - Is the latest tape to disk menu system from a new English company called MADSOFT. The makers claim that it will transfer ANY cassette software to disk with the resulting file being compatible with most other common menus, including Howfen DOS and Transdisk. From my brief trials, their claims seem to be correct! There are no docs supplied but the program is very easy to use - have a play around with the menu options and you should be transferring cassettes to disk in no time.

CONCLUSION

Stuart aimed to fill each disk with the very best available articles and programs, and with the help of his fellow Futurians I think he succeeded, as each issue contains something for everyone. The remaining six issues will be detailed in my next column.

RECURSION

by David Sargeant

A generally agreed principle for writing a computer program is that it should be structured and Turbo Basic with its procedures and its various kinds of loops allows you to write in this way. I have recently come across another kind of program loop which you may find interesting. It is called 'Recursion' and allows a procedure to call itself as often as it requires.

```
UA 10 REM ***************************
TT 11 REM * RECURSION - LISTING 1   *
OL 12 REM *     BY DAVID SARGEANT   *
EY 13 REM *     (TURBO BASIC)       *
LI 14 REM * ----------------------- *
BH 15 REM * NEW ATARI USER - SEP 95 *
UM 16 REM ***************************
YM 100 GRAPHICS %0:? "RECURSION":?
SV 110 DIM SPACE$(%3):SPACE$="   ":I=%1
UD 120 ? "Main program"
IX 130 EXEC RECURSION
AT 140 ? "Main program again":END
JM 150 --
JO 160 --
MQ 170 PROC RECURSION
CR 180 ? SPACE$(1,I);"Forward ";I
FK 190 I=I+%1
TB 200 IF I<4 THEN EXEC RECURSION
FL 210 I=I-%1
PZ 220 ? SPACE$(1,I);"Backward ";I
VQ 230 ENDPROC
JL 240 --
```

As you can see from Listing #1 the Recursive procedure is executed 3 times, firstly from the main program and subsequently from the Recursive procedure itself. Below is a list of the program flow, you can use TRACE to see this:

Main Recursion

```
Line# 100
      110
      120
      130
            180
            190
            200
                  180
                  190
                  200
                        180
                        190
                        200
                        210
                        220
                        230
                  210
                  220
                  230
            210
            220
            230
      140
```

```
UA 10 REM ***************************
XY 11 REM *  RECURSION - LISTING 2  *
OL 12 REM *     BY DAVID SARGEANT   *
EY 13 REM *      (TURBO BASIC)      *
LI 14 REM * ----------------------- *
BH 15 REM * NEW ATARI USER - SEP 95 *
UM 16 REM ***************************
EM 100 GRAPHICS %0:? "RECURSION - PRIME F
ACTORS":?
AG 110 INPUT "Number (0 to exit) >",NUMBE
R
BI 120 WHILE NUMBER
ZF 130 DIVISOR=%2
UR 140 WHILE DIVISOR<=NUMBER
FM 150 EXEC FACTOR
FE 160 DIVISOR=DIVISOR+%1
UX 170 WEND :? :?
VX 180 INPUT "Next number >",NUMBER
PX 190 WEND :END
JD 200 --
JF 210 --
IS 220 PROC FACTOR
QN 230 IF NOT (NUMBER MOD DIVISOR)
JC 240 ? " ";DIVISOR;
BZ 250 NUMBER=NUMBER DIV DIVISOR
FP 260 EXEC FACTOR
IX 270 ENDIF
WA 280 ENDPROC
JV 290 --
```

The main program is executed down to line 130 where control is passed to the RECURSION procedure. This executes down to line 200 where the value of I is checked. If the condition is true, the RECURSION procedure is carried out again from the beginning, but if it is false, lines 210-230 are carried out. When the procedure exits program control passes back to the place where the procedure was called, which could be either the RECURSION procedure itself or the main program.

Listing #2 is a small routine to show how a recursive procedure can be used for a practical purpose. It calculates the prime factors of any positive integer. ●

NEWS *extra*

AMS DATES

The All Micro Show at Stafford is still going strong with this year's dates now available.

The Spring show - SAMS '98 is on Saturday 18 April and the regular show - AMS '98 is on Saturday 14 November '98. Both shows are open from 10am to 4pm and admission is £3 for adults with children under 14 at only 50p. If you wish to save a few quid you can get advance tickets from the organisers for £2 plus a stamped addressed envelope. Send to Sharward Promotions, Knightsdale Business Centre, 30, Knightsdale Road, Ipswich, IP1 4JJ.

We have no details of what Atari support will be at the shows this year but there is always some and a visit will be well worthwhile if you want to find some cheap software or pick up a disk drive (get there early!). If you also have a PC then the show is a must as there are literally thousands of PC programs around at bargain basement prices.

CONTRIBUTIONS

We are desperately short of contributions for coming issues.

Please send what you can - articles, programs, reviews of software, in fact anything of interest to fellow Atari users. If you cannot write yourself perhaps you could find something in User Group publications that we could republish?

Remember - without your contributions we have major problems. I cannot write it all myself!

Les Ellingham

PAST, PRESENT AND FUTURE - AN ATARI OWNERS TALE!!!

by Richard Gore

Since Atari no longer exists in the form that we have known since the late 1970s it is perhaps a good time to reflect on what could have been, what is and what the future might be.

There can be no doubt that the Atari 8-bit machines are one of, if not the best 8-bit range of computers ever to be made, their only problem is how badly they are underrated by those that have had little or no contact with them. Sadly that is the vast majority of computer users. A friend of mine who is a Music Technology lecturer and has had vast experience in electronics (he was one of the first people to get an Atari Falcon and development kit from Atari UK to enhance music and its presentation) once told me he was amazed at just how advanced the 8-bit machines were when they were first released. What might have been?

February 1986 was when I acquired my first Atari computer, an 800XL with Phonemark data recorder (a similar design to the Atari XC12 but in beige and with an external power cord - probably the forerunner to the XC12), a joystick and five games in the Dixons/Currys bundle for about £80. Its hard to believe that was over ten years ago, and guess what? The computer still works fine, even if the data recorder only lasted a few months!

After a visit to W. H. Smith I found the original Atari User magazine from Database Publications which as we all know no longer exists since it was bought out by Page 6 in October/November of 1988. This magazine provided my monthly fix of reviews, articles and type-ins which never seemed to work first time and I was very sad to see it go, but then I discovered Page 6 and quickly discovered it was as good if not better than Atari User.

BOOM TIME

The month of February 1986 was the start of the boom in Atari 8-bit budget software. Upon my first visit to my local computer shop I was greeted by two or three shelves of software, all of it priced at £10 or more. Other machines such as Spectrum, Commodore and even Amstrad had more software and it was priced lower but as we all know they didn't have quite the same quality. My first purchase was Spy Hunter on tape for £9.95, a vertically scrolling car game that has you shooting other cars, dropping oil slicks, and firing missiles at helicopters, all controlled from two joysticks or the keyboard, a great game and at the time it was worth the ten quid. My next visit to the shop a couple of weeks later was greeted with a tremendous surprise, there amongst all the lavishly packed £10 plus games were two cassette tapes in those single sized cases priced at just £1.99 each. The titles were Clumsy Colin Action Biker and One Man and His Droid, both from a company called Mastertronic. I immediately bought both titles. Unfortunately Action Biker would not load and when I returned it to the shop the assistant asked me if I was running it on an 800XL, which I was, and he said that was where my problem was as it wouldn't work. Mastertronic must have fixed this problem because a couple of years later I tried another copy from another shop and that did work! Anyway over the next few years more and more budget titles became available, eclipsing the full priced titles and eventually forcing most full priced games out of the market. During these couple of years companies like US Gold, MicroProse, Tynesoft and others were releasing full price quality games, Mastertronic and Firebird (a division of British Telecom) were releasing budget games, and smaller firms were releasing new hardware (for example, 2-bit Systems Replay sound digitising cartridge). If there ever were any boom years for the Atari 8-bits then the period of 1986 to mid 1989 were them!

DUMP TIME

The world of consumer electronics is fast paced and machines such as the Commodore Amiga, and the emerging IBM PC clones were now being sold in vast numbers. Many Atari users dumped their machines and moved on. As a result software sales dropped and only a few committed companies like Page 6, Zeppelin games and to a lesser extent Hi-Tech and Byte Back software were releasing new software and/or re-releasing older software at budget prices. The boom was well and truly over and only the dedicated Atari lovers were left, but they would fight on. During this time there were rumours of many games being written for the Atari, like Elite, Paper Boy, Shadow of the Beast and many, many more. All sorts of stories were spreading about them and most Atari users would have given almost anything to get copies. Some people even claimed to have versions of some titles. I have seen a demo version of Shadow of the Beast but it was nowhere near complete. Piracy, a dodgy subject matter at the best of times, was one reason for the death of the 8-bits, but others have argued piracy is why the Atari has survived so long. One thing that is for certain is that piracy has not gone away on any format.

COMMITTED SUPPORTERS

Now, all that is left are a dedicated few, several hundred, possibly a couple of thousand users, a handful of commercial outlets, eg Page 6, Micro Discount (aka Derek Fern), DGS and one or two individuals like myself. Several commercial outlets and Atari Classics magazine still exist in the USA and there is a small but flourishing community on the Internet (usenet group comp.sys.atari.8-bit for those with access).

POPULAR PCs?

PCs are now very popular, many people use them at work, at school, at college or even in the home, 16megs of memory, SVGA monitors, 1.2gig hard drives, CD-ROMs and Intel Pentium processors are all common computing terms now in this Multimedia explosion we are experiencing. The drawback? Well the price, for one thing, a mid-range reasonably well equipped PC can easily cost £1000 to £1200. For an extra couple of hundred

pounds you can turn your PC into a combined telephone, fax and answering machine! Add a printer, about £200 for a colour bubblejet, and your free copy of Windows 95 and Microsoft Works and you have a complete Multimedia family entertainment console, total outlay about £1500. Now I have spent in excess of that amount on my Atari 8-bit equipment and software but over a period of ten years. I work a full time job that pays reasonably well, but I really can't justify spending £1500 on a PC when my existing 8-bit machine can do most of the simple things a PC can do. Sure I can't do complex DTP, I can't play CD-ROMS (well not yet, there are rumours some people in Germany are working on that!) but I can write letters, I can write articles (this is one of them) I can keep track of my finances, I can play many wonderful games, and all from a machine that originally cost less than £80. Okay, plus a disk drive that cost £150!

FULL CIRCLE?

Games consoles are now also very common, SNES and Megadrive were very popular a year or two ago but now the Sony Play station and Sega Saturn are all the rage. Most games are now supplied on CD (very cheap to duplicate), most feature great graphics, stereo sound and even full motion video, but just look at the price, £40 to £50 each is about the norm. Have we come full circle? Some of the best early Atari games were that sort of price. I must admit I have partially succumbed as a couple of months ago I bought a Philips CD-I machine at a discounted price. This machine can play video CD films, karaoke discs and CD-I games. Some of the games are absolutley mind-blowing with full motion video, stereo sound. Some even have good game play

There is a limited range of Video CD films available, which is a shame because the quality can be better than a VCR for about the same price as VHS films. If only more widescreen titles were available. This system is connected to my main TV along with my VCR and satellite receiver and gets used about half an hour a week. I still use my 8-bit Atari much more and quite often I'll spend an hour playing Mr DO, one of my all time favourite games. I am even still working on writing new software, some of which you should see very soon.

What does the future hold? Well so long as people are still using their 8-bit machines there is a future for them. If we keep subscribing to Page 6 and supporting the commercial outlets there is no reason why we shouldn't enjoy years more with our 8-bits. Sure there is room for new technology, PCs and games consoles, (I use PCs at work to control Ultra violet spectrometers, and HPLC machines - something the old 8-bit machines would struggle to do, although I'm sure some limited control would be possible) but I'll bet you will still want to use your 8-bit Atari. Indeed software now exists that will emulate an Atari 8-bit machine on a PC, and this has resulted in many ex-users becoming users again, without even owning an 8-bit machine!!!! How's that for progress? Development is underway to allow CD-ROM and IDE Hard drives to be connected to your 8-bit, and even cables and software to allow your 1050 drive to be connected to your PC. Imagine the look on your boss's face as he walks in and sees your 1050 drive connected to his PC and you sat there playing Pac-Man or Star Raiders!

To finish off I want to quote somebody, I'm sorry but I've forgotten who said it but here goes;

"Old computers never die, they just acquire dedicted users." ●

MAGIC SQUARES

David Sargeant has been fascinated by numbers for years and has worked out some rules that may allow you to create Magic Squares on your Atari

Magic squares have been keeping people busy for at least 2,000 years. They are 'magic' because whether you add up the numbers in each row, each column or both of the longest diagonals, you always get the same answer. The smallest Magic Square is 3 rows by 3 columns and in theory there is no limit to the size of the largest one.

Whatever size you choose, you have to follow two simple rules to construct your own. Firstly, all the numbers must follow each other in sequence, for example a 3 x 3 square would have to consist of the numbers 1 - 9 or 7 - 15. Secondly, if you are making an even numbered square (4 x 4 for example), you must put the smallest number in one of the four corners. For an odd numbered square (3 x 3 for example) the smallest number must go in the middle of the top or bottom row or the middle of the leftmost or rightmost column.

A 3 x 3 Magic Square

8	1	6
3	5	7
4	9	2

Rows, columns and the two longest diagonals add up to 15

A 4 x 4 Magic Square

13	2	3	16
8	11	10	5
12	7	6	9
1	14	15	4

Rows, columns and the two longest diagonals add up to 34

CATEGORIES

It is possible to work out algorithms for calculating most Magic Squares and these fall into three categories. To find out which method to use, divide the Square number by

4 and then proceed as follows:

Use method 1 if the remainder is an odd number, e.g. 3, 5, 7, 9

Use method 2 if the remainder is 0, e.g. 4, 8, 12

Use method 3 if the remainder is 2, e.g. 6, 10, 14

The total of each row, column and diagonals is calculated by adding the smallest and largest numbers in the Magic Square and multiplying the answer by half the size of the Square, e.g. a 5 x 5 Square is (1+25)*(5/2)=65

METHOD 1

This method is a 2 stage process which involves shifting numbers in each row and then in each column.

Stage 1

Step 1 - Calculate n to be the number of shifts for each row and column by dividing the size of the Magic Square by 2 and ignoring the remainder

Step 2 - Starting with the top row shift each number n places to the right. Numbers which are shifted beyond the end of the row are wrapped around to the beginning of the same row

Step 3 - Subtract 1 from n and repeat Step 2 on the row below the previous one and continue this until n=0

Step 4 - When n=0 you will be on the middle row. Numbers on this row need not be changed

Step 5 - Reset n as Step 1 and starting with the bottom row this time shift each number n places to the left. Numbers which are shifted beyond the beginning of the row are wrapped around to the end of the same row

Step 6 - Subtract 1 from n and repeat Step 5 on the row above the previous one and continue this until n=0. You will have reached the middle row again and this stage is now complete

Stage 2

This is a similar process to Stage 1, but whereas in Stage 1 rows of numbers are shifted right and left, this time numbers in each column are shifted downwards and upwards.

A 5 x 5 Magic Square

Start with the numbers in sequence

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Stage 1 complete. n=2

4	5	1	2	3
10	6	7	8	9
11	12	13	14	15
17	18	19	20	16
23	24	25	21	22

Stage 2 complete. n=2

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

METHOD 2

This is a two stage process which involves reversing certain rows of numbers and swapping blocks of numbers

Stage 1

Calculate n1 to be the number of rows which have to be reversed by dividing the size of the Magic Square by 2 and n2 to be the number of rows to leave unchanged before beginning the reversing procedure by dividing n1 by 2. So after leaving n2 rows as they are, reverse the numbers in the next n1 rows.

Stage 2

Calculate block to be the row and column size of each block of numbers to swap by dividing the Magic Square number by 4. Then separate the Magic Square into 16 smaller squares of numbers and swap them as follows:

Smaller squares

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Swap the numbers in squares

1 and 13

4 and 16

6 and 10

7 and 11

An 8 x 8 Magic Square

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

Stage 1 complete. n1=4, n2=2

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
24	23	22	21	20	19	18	17
32	31	30	29	28	27	26	25
40	39	38	37	36	35	34	33
48	47	46	45	44	43	42	41
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

Stage 2 complete. block = 2

57	58	3	4	5	6	63	64
49	50	11	12	13	14	55	56
24	23	46	45	44	43	18	17
32	31	38	37	36	35	26	25
40	39	30	29	28	27	34	33
48	47	22	21	20	19	42	41
9	10	51	52	53	54	15	16
1	2	59	60	61	62	7	8

METHOD 3

Try as I might I have not been able to work out an algorithm for this type of Square. Rules I have worked out for a 6 x 6 Square do not remain the same for a 10 x 10 square, so you will have to resort to trial and error.

A 6 x 6 Magic Square

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Trial and error came up with this answer:

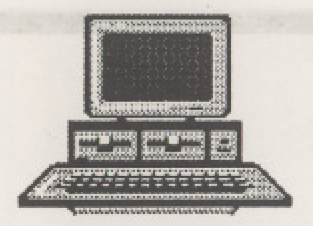
3 numbers on the top row are swapped with 3 numbers on the bottom row

3 numbers on the second row are swapped with 3 numbers on the fifth row

3 numbers on the third row are swapped with 3 numbers on the fourth row

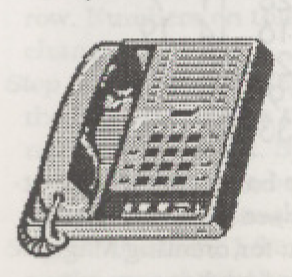
1	35	34	3	32	6
30	8	27	28	11	7
24	23	15	16	14	19
13	17	21	22	20	18
12	26	10	9	29	25
31	2	4	33	5	36

So there you have some basic rules for creating Magic Squares. Let's see if you can translate these into a program for creating Magic Squares on your Atari and perhaps we can publish the results in a future issue. ●



JOURNEY INTO CYBERSPACE

John S Davison explores the Internet and discovers all the wonders of a brave new electronic world



I recently came across a reference to an Atari resource on the Internet I'd not heard of before. It's a World Wide Web site called the Atari Reference Desk (ARD), which can be found at http://www.geocities.com/SiliconValley/Peaks/6320/atari001.htm. It sounded just the sort of thing Atari fans needed - a central reference point for all things Atari. So, I decided to check it out and report my findings here. It's aimed at users of the Atari 68000 based systems (STs onwards), although future coverage is promised (and is starting to appear) for 8-bit and Portfolio users.

As a general observation, Web sites sometimes tend to be disappointing, as the material they contain can be either out of date or turns out to be just a list of references to other sites. It's possible to waste a lot of time just hopping across links from site to site and never actually getting anywhere in terms of finding useful information. Occasionally a site's prime reason for existence seems to be as a vehicle for the owner to show off his technical skills as a web page builder, containing screens full of flashy presentation gizmos that take forever to load, but offer very little in the way of real, useful content. ARD was said to be different, so I was keen to try it out. Here's what I found.

ST-FRIENDLY SITE

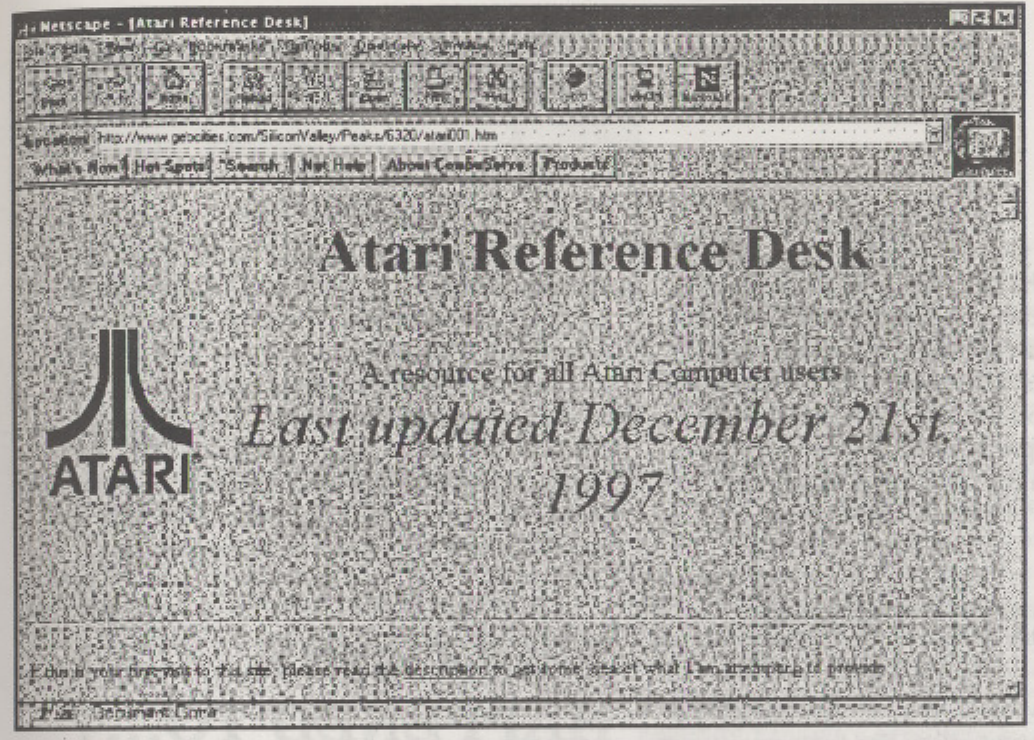
ARD's designer, Terry Ross, has taken the view that his site should be accessible by Atari users with relatively modest system resources rather than PC owners with incredibly powerful Pentium II systems. This means that the coding behind the site's pages has been kept fairly sparse so an ST's lowly processor can happily handle it. Graphics usage has been minimised, so memory usage, disk usage, and download times are kept low too. Terry uses an STe (admittedly with 4MB RAM), 1 x 720KB floppy drive (but no hard drive), and a 14.4KB/s modem - a modest setup indeed when compared with today's typical PC configuration.

ARD is divided into four main sections, entitled Links (what a surprise!), Program Reference Library, Miscellaneous Info Dept., and Atari Community Bulletin Board. The Links section is subdivided into five further topics called Quick Links; General Links; Name Links; Help; and Others (the last of which doesn't seem to be working at present). Clicking on Quick Links pulls up an alphabetic list of 85 other WWW sites of interest to Atari users. It's intended for use when you already know about a particular site, but have forgotten its URL.

Clicking on "General Links" produces what appears be a list of Terry's favourite sites, and is roughly divided into subsections which include "ST Magazines" (on-line ones, that is), "Atari Hardware Information", "Useful Links", and "Computer Related Pages". Hmmm, could do with better classification here, but Terry admits that there's still work to do in this area. I noted some well known names amongst the sites listed, such as Calamus Desktop Publishing, ICD Atari Products, and Gribnif Software, to name but three. This section also attempts to track and highlight changes of site addresses, a frequent "feature" of WWW sites. You can access a site through a given address for months, then suddenly you get an error message saying it's no longer there. What's often happened is that the site's owner has found a better deal with a different Internet Service Provider so has moved his site there (sometimes with no warning to users!). ARD monitors these changes and helpfully provides the new URL address.

"Name Links" is something I haven't come





Welcome screen of the Atari Reference Desk.



across before. If you've been involved in the Atari scene on the Internet and remember a participant's name but can't remember their site name or address, then this is an invaluable tool. You just look up the person's name and click on it to link directly to their Web site. Now that's pretty neat. There were 56 people named in the list, some of whom I recognised from previous Web surfing sessions.

8-BIT LINKS

Help Links provides links to sites providing help in various categories. For instance, there are links here for the 8-bit systems, e.g. to Michael Current's superb Atari 8-bit FAQ (Frequently Asked Questions) document, which I've mentioned in previous articles. It also covers 8-bit upgrade, modification and add-on topics; emulators; and lists of Atari vendors and developers. Oh, and there's even help for new users - although I wouldn't think there are many of those around these days! In the Communications Help section there's a link to an FAQ on the Beginner's Guide to Communications using your ST, and another covering Atari connectivity to the Internet. I downloaded both of these and discovered they were dated 1995 and 1994 respectively. Not so good. New communications software has been released since then (e.g. CAB for WWW access via the ST), but why do you rarely see anything about it on these WWW sites?

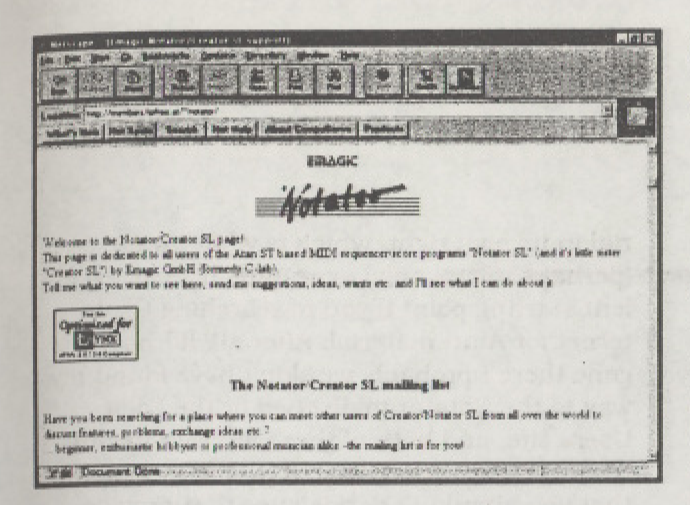
The next section on ARD is the "Program Reference Library". The "Index" of this subsection claimed to provide information on Atari programs, such as where to get them, where to register copies, etc. I was expecting it to contain hundreds of entries, but it held only - wait for it - SIX! This was a major disappointment - it's hardly worth bothering for such a sparse list. The next subsection provides a facility for current or past Atari programmers to enter details of their programs. Suddenly all became clear. You only see an entry if the programmer has found the site and taken the trouble to enter the details. Looks like only a handful have done this so far. Hopefully this will improve over time.

WHATEVER HAPPENED TO...?

Then we have the "Miscellaneous Info Dept" and this contains two subsections. The first, "Whatever Happened To...", is an attempt to shed some light on what happened to the personalities of the Atari scene of years gone by. You can post a request for a particular person and users of ARD can then enter any information they know about that person's whereabouts and what they are doing now. For instance, remember Clayton Walnum? He used to write for ANALOG magazine years ago. Well, he's apparently alive and kicking and now spends his time writing programming manuals. His e-mail and Web site addresses are provided so you can contact him if you wish. This is a great idea, but again there are only half a dozen or so entries with follow-up details, plus another two or three requests for information. (Thinks - I might submit Les's name for this, together with details of NAU!).

The second subsection is called "Random Facts", and is supposed to contain Atari related rumours, clarification, and trivia, but





Entry to the Notator/ Creator SL Users site

contained no information and didn't appear to link to anything. Similarly the final major section, "Atari Community Bulletin Board", had a note attached saying plans for this have been put on hold, so has no content either.

NOW FOLLOW THE LINKS

If ARD's content is on the light side, what about the quality of the links? One link that caught my eye was "Hallvards Atari ST Global Access Page" run by Hallvard Tangeraas. When accessed, this site actually announced itself as "The Atari Hyperlink Launchpad". Oh no, not ANOTHER list of links! This one has 15 sections, and I was immediately attracted to the "MIDI/Sound" section (music being one of my major interests). This in turn led to a list of 16 further links, one of which was "Notator/Creator SL Users Page". Bingo! Emagic's Notator is the software I use for MIDI sequencing and music score production on my ST (and I also use its successor, Emagic's Logic, on my PC - also available on the ST). Following this link produced a page telling me I could now subscribe (for free) to a Notator mailserver located in Austria. This is like a worldwide bulletin board for Notator which automatically e-mails any new entries posted there directly to subscribers - you don't have to go and fetch them yourself. It only came into use on 7 February 98, so this news was bang up to date. I signed up for this immediately, and the next time I logged on there were e-mail messages confirming my participation and instructions on how to use the service. From that point on I started receiving messages from Notator users. Great - it works!

The next link I tried was to the World Wide Logic Users Web site. This, in fact, seemed to cover all Emagic's products so was a real find. It's not run by Emagic, but by users for users. There's a whole stack of useful items here - in particular some superb looking online tutorials for various Emagic products. Emagic's music programs are VERY complex and the user manuals provided are, shall we say, somewhat opaque, so a site like this is the answer to a prayer. Although the tutorials use the Apple Mac versions of the software, the PC and Atari versions are similar. There was only time for a quick look while preparing this article, but I was very impressed and shall certainly come back here for a more thorough perusal.

FREE SOFTWARE

There are another 15 links from the Hyperlink Launchpad, including to Sweet Music Software who provide the freely downloadable "Sweet Sixteen" ST MIDI sequencer, and Hollis Research from where you can obtain the famous "Trackman" sequencer and "MIDI-



man" universal editor controller, also for free. The last two were full commercial ST products in their day, and John Hollis, their author, has removed the copy protection and made them freely available on the Internet now they have little commercial value. What a great gesture - it's a pity more authors don't have John's enlightened attitude to old software products.

So what of ARD, which was after all our original topic? Well, it's NOT a source of material in its own right, which is what I was (perhaps mistakenly) expecting. It IS an excellent starting point if you're searching the Internet for Atari material. After all, if I hadn't gone there I probably wouldn't have found my way to the Notator mailserver or the Logic Users site, and both of these are very useful resources, to me anyway. It just goes to show that you shouldn't deride sites that provide only links. They could be just the links you need. ●

NAU Internet Contact List

The following NAU readers would welcome e-mail contact from other Atari users. If you'd like to be added to this list please drop an e-mail note to John S Davison at the address below.

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contact ... contact ... contact ...

FOR SALE

SPACE NEEDED: Due to lack of space, an Atari software collector has a very full range of titles for sale. Anyone interested can ask for lists. All titles are original with both packaging and full info. Also many books, STOS and manuals etc. Magazines - Page 6 and Atari User. Also available ST/E software, all originals; magazines - ST User, ST Format, ST Action up to final issues. Cover disks also available. HARDWARE - Atari 800 with translator; 130XE; two XL's; 65XE; 810 drive; two 1050 drives (1 with US Doubler, 1 with Happy chip); 1029 printer with spare ribbons. All with power supplies and leads. Phone any time - S. Keyworth 01246 851395. Can deliver if order large enough. I am open to offers.

FOR SALE: Atari 8-bit hardware and software. For list please contact Mike on (01302) 834410 or e-mail hamster@super.net.uk

WANTED

CHROMA CAD: Chroma Cad package wanted or any good design package to run on expanded XL. Also Eprom Programmer or details about. Please phone Karl on 01226 270842

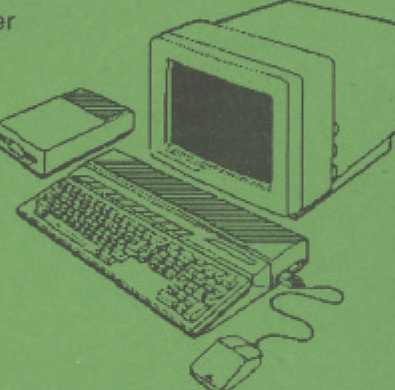
MAGAZINES: I am looking for PAGE 6 issues 1 to 30, 32 and 35. Anybody got any leads? Joe Boggard, 1014 Valerie Drive, Schenectady, N.Y. 12309, USA

DISK DRIVE: 1050 disk drive wanted for Atari 800XL. Must have all connection leads. Must be in good working order and reasonably priced. Must be in London/M25 area for pick-up. Contact Steve on 0181 501 4739

HELP

ERROR CODES: Can anyone please help me with explaining the various Error Codes. I am trying to program our 800XL but keep getting errors. I have a list of the Error codes but don't know what they mean. Can anyone help? Please contact S Bateman on 0181 501 4739





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CONTACT, PAGE 6 PUBLISHING, STAFFORD, ST16 1DR

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PROGRAM LISTINGS

Certain program listings which are too long to include in the magazine may be obtained free of charge as printed listings to type in. All programs are, however, included on the Issue Disk which is available with each issue. Remember this disk also includes BONUS PROGRAMS which do not appear in the magazine. If you would like the type-in listings please write or telephone indicating which listings you require. Please note that there are not necessarily extra listings for every magazine.

Write to LISTINGS, NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1DR or telephone 01785 241153